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# Cutaneous Tumors of Childhood

## DISPARITY BETWEEN CLINICAL BEHAVIOR AND HISTOLOGIC APPEARANCE

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TWENTY YEARS AGO cancer was not listed even among the first ten causes of death in children; it is now second only to accidents in accounting for deaths in the age group of one to fourteen years.[1] This change, to be sure, is only a relative one, due primarily to the extraordinary accomplishments in effecting a reduction in the death toll from infectious and neonatal diseases. Nevertheless, although there has probably been no real increase in the incidence of cancer among children, the relative change in its position as a cause of death has made it one of the most formidable antagonists in our overall battle for conservation of life. In the United States in 1947,[1,2] 152,000 children died from all causes, and of these deaths only 2,000 (1.3 percent) were caused by cancer, of which leukemia would probably account for almost one half. Cancer in children, then, is not a common disease. The greater attention focused on this very small group is due largely to the fact that the tumors are often highly malignant and rapidly fatal, and because in other respects, including the frequency with which they elude early detection, they are often in frustrating contrast to the common cancers of adults.

The death rate from cancer varies considerably in the different age groups of childhood; that is, from the ages of one to four it is 40 percent higher than in the five to nine group, and 80 percent higher than in the nine to fourteen group. This variation is clearly explained by the types of cancer tending to occur in each group and would be even greater if the leukemias were excluded, since the incidence of leukemia is almost constant throughout childhood. Those tumors considered specific for childhood occur mainly in the first few years of life and begin sharply to decline in incidence in the second period. In the third period, when a greater number of the more adult types of tumors are noted, the childhood varieties of the neoplasms occur only very rarely. Characteristic of infancy are the embryonal, sarcomatous or mixed tumors, of which the best known are the Wilms' tumor of the kidney, the various teratomas, the adrenal and retinal neuroblastomas, and the embryonal rhabdomyosarcomas, most of which occur before the age of three years and some of which are congenital. The development of these embryonal tumors on the basis of dysontogenesis, often within the span of intrauterine life, clearly sets them apart from the ordinary cancers of adult life which probably arise only after long exposure to various carcinogenic agents yet to be defined.

While great emphasis has been placed on the malignant tumors of early childhood, the benign tumors have escaped much attention in discussions of neoplastic diseases. Nevertheless, these are the tumors that are encountered far more often and require keener judgment, particularly with regard to histologic diagnosis and treatment, than the relatively rare malignant tumor which is generally diagnostically clear and often fatal despite radical surgery and radiation. As a matter of fact, at Memorial Hospital, an institution practically limited to

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the diagnosis and treatment of neoplastic diseases, approximaely 25 benign tumors are seen to every malignant one in children. Most of these are cutaneous. Hence the differential diagnosis of cutaneous lesions of children, whether neoplastic or inflammatory, and the dependent choice of therapy are of primary importance, for by the lack of complete understanding of such lesions, the adult life of these children obviously may be jeopardized in many ways. Moreover, it is entirely possible that some of the cancers of adult life can be avoided through knowing forethought in the handling of patients during their childhood. It is the purpose of this discussion to appraise the clinical and pathologic features of some of the more common cutaneous neoplasms of childhood and particularly to emphasize the disparity between the clinical course and certain of the pathologic aspects.

## Histiocytoses

The histiocytoses, clinically both malignant and benign, comprise a group of closely allied generalized diseases which cannot be separated satisfactorily into distinct categories, despite the specific names applied to them. These include Letterer-Siwe disease, Hand-Schüller-Christian syndrome, and eosinophilic granuloma of bone. All of these have until recently been thought to be the result of abnormal lipid metabolism; but there has been accumulated evidence sufficient to indicate that, while the nature of these diseases is still not clear, the deposition of lipid occurs only in lesions of some duration and is, therefore, only a secondary reactive phenomenon, in much the same sense as it is in a variety of other basically non-lipid lesions, including the nonosteogenic fibroma of bone and others. These diseases, therefore, are to be considered as categorically distinct from the true lipid disorders, such as Gaucher's disease and Niemann-Pick disease.

Clinically, cutaneous lesions are commonly associated with Letterer-Siwe disease and Hand-Schüller-Christian syndrone, and have been reported in a case of eosinophilic granuloma of bone.[3] However, since the histologic features of the latter two diseases are so similar, further confirmation is needed of this report concerning the occurrence of cutaneous manifestations with eosinophilic granuloma of bone.

In the histiocytoses, there may be single or multiple cutaneous lesions which appear more commonly on the face and trunk than on the extremities. Rarely, the skin may show a diffuse, fine purpuric and eczematous rash, the nature of which has not been clarified pathologically; more often, the lesions are distinct reddish, indurated macules, seldom larger than 1 to 2 cm. Histologically, these are composed of nodular collections of histiocytes associated with inflammatory cells, among which eosinophils often predominate. If the granulomatous foci thus formed contain large numbers of foam cells, the appearance may be very like the banal innocuous cutaneous xanthoma; on the other hand, often little or no fat is present, and the cells may have a bizarre anaplastic appearance quite like those of Hodgkin's disease (figure 2). In the absence of fat within the cells, the designation of nonlipid histiocytosis, or Letterer-Siwe disease, is arbitrarily used. Frequently the histiocytes may contain fat despite the illusory acidophilic homogeneity of the cytoplasm instead of the latticed foamy cytoplasm of obviously fatty histiocytes. This histologic situation is particularly true of the eosinophilic granuloma of bone and of Hand-Schüller-Christian syndrome.

Of course, the critical issue has to do with the decision as to whether or not a given histiocytosis of the skin is associated with visceral lesions—a decision not always possible since there appears to be no basic correlation between the histologic appearance of these lesions and the ultimate prognosis. A child recently seen at Memorial Hospital illustrates the difficulty in predicting outcome on the basis of the histologic findings. A female, aged five years, presented numerous red-brown nodules on the trunk and extremities (figure 1); these had appeared first at the age of two years, had disappeared, and then recurred in crops several times. Three of these nodules were excised and all showed what was at least a histologically malignant lesion (figure 2) which in an adult would surely indicate a grave prognosis. This child, after four years, still has no enlargement of the liver, spleen, or lymph nodes, and is clinically normally developed and healthy. A similar disparity between histologic aggressiveness and benign clinical course is observed in other lesions of children, especially the juvenile melanomas and certain of the hemangiomas.

On the other hand, another child, aged eight months, had several nodules in the neck and an eczematous rash on the trunk which had developed first at the age of three months. The histologic appearance of tissue excised for diagnosis revealed only innocuous appearing cells in a form simulating benign lipogranuloma. Nevertheless, this child was seriously ill and died a few weeks after admission with a generalized visceral histiocytosis or "reticulosis." Another differential problem occasionally arises in both the clinical and histologic diagnosis of urticaria pigmentosa. In infants, scattered brown lesions of this disease closely simulate those of the xanthoses or histiocytoses. To be sure, the synonym

for urticaria pigmentosa is "xanthelasmoidea." Histologically, the diagnosis can be established easily by the identification of the principal cell of the dermal infiltrate; namely, the mast cell. It is possible to detect these cells even in routine sections stained with hematoxylin-eosin; metachromatic stains such as toluidine blue may be used for confirmation. Incidentally, eosinophilic leukocytes are frequently and conspicuously present in urticaria pigmentosa, just as they are in the histiocytoses.

From these, as well as other similar examples, it seems clear that the course of the histiocytoses may often be predicted better on clinical evidence than on the histologic appearance of the cutaneous lesions. In general, in addition to other findings, it does appear that the more diffuse the involvement of the skin, the more pessimistic the prognosis. This principle is one that also applies to the rare, universally fatal, generalized skin disease, xeroderma pigmentosa, on the basis of which multiple basal cell and squamous cell carcinomas, and even malignant melanomas are developed. While a single biopsy may not indicate more than an innocent-appearing dermatitis, the clinical appearance gives more reliable evidence of the nature of the disease.

### Differentiation of the Histiocytoses from Other Cutaneous Lesions

*Juvenile Xanthomatosis.* Several other cutaneous lesions clearly differentiable by histologic examination must be considered in the clinical differential diagnosis of the histiocytoses. Multiple nodules of the skin may be seen in leukemia and may be clinically confusing especially when the peripheral blood is normal or leukopenic.

Occasionally the cutaneous lesions of the histiocytoses assume a dull yellowish appearance clinically simulating those of juvenile xanthomatosis, a primarily lipid disorder. The histologic appearance of foamy lipid-filled cells among which are the characteristic Touton giant cells (figure 4) is clearly diagnostic of this disease. In addition, the classic distribution in juvenile xanthomatosis of yellow nodules along the extensor surface and tendons (figure 3) aids in the differentiation. It should also

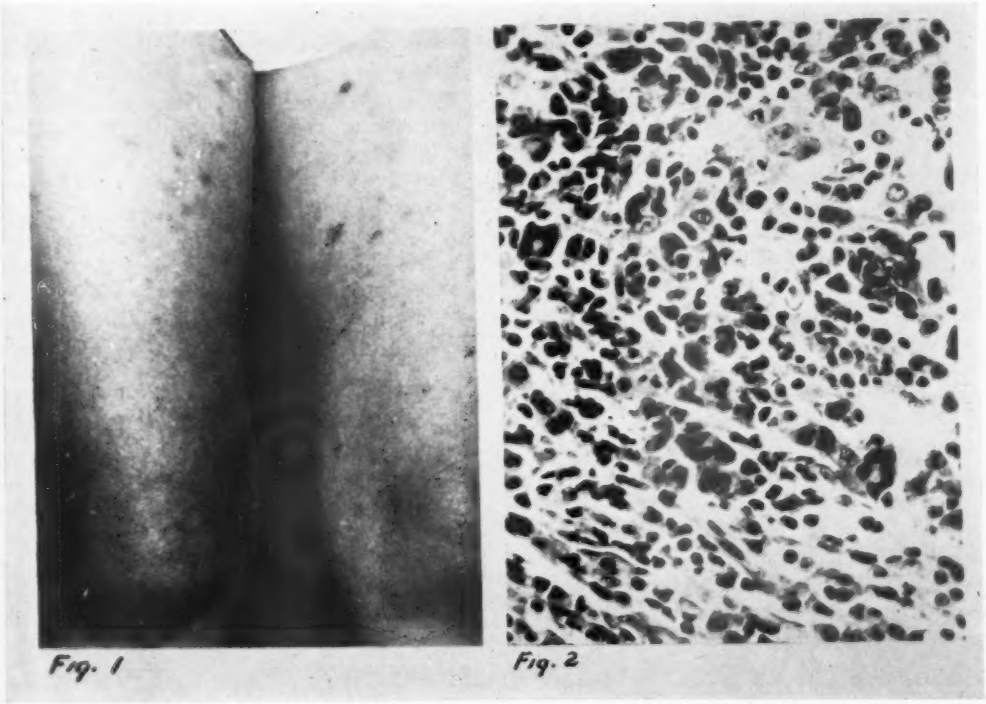


**Fig. 1. Multiple recurrent cutaneous nodules in female, aged 5 years. Histologically malignant but clinically symptomless for 3 years.**

**Fig. 2. Histologically malignant cutaneous histiocytosis from child in figure 1. Structure simulates Hodgkin's disease.**

be pointed out that, in the cutaneous xanthoses, an elevated level of blood cholesterol constitutes a reliable indication of poor prognosis notwithstanding the fact that the histologic appearance is identical whether or not there is hypercholesterolemia.

*Insect Bites.* The confusion of the cutaneous lesions of the histiocytoses as well as those of the lymphomatous diseases with insect bites has recently been defined and emphasized by Allen.[4] Contrary to the general impression that the reaction to insect bites lasts only a few days, he has shown that there may be persistence of these lesions for many months and that the venom elicits a dense dermal infiltrate containing large numbers of histiocytes and eosinophils. Histologically, these persistent insect bites may be mistaken for any of the group of malignant lymphomas and histiocytoses (figures 5 and 6). The possibility of insect bite should then be considered particularly in children, so often exposed to insects, in the presence either of single or of multiple lesions clinically suggesting these diseases. It is highly probable that some of the reported instances of "cutaneous eosinophilic granuloma" may represent the reaction to insect bites rather than the histiocytoses they are presumed to be, particularly when the lesions are solitary and when histologic examination of other lesions is not also carried out.

*Neurofibromas and Dermatomyomas.* Dermal and subcutaneous nodules, particularly those associated with von Recklinghausen's disease, occasionally offer diagnostic problems. The typical neurofibroma of the skin may be solitary or multiple, and forms a soft dome-like elevation of the skin (figure 7). In the fully developed syndrome, the cutaneous lesions, both neurofibromas and lipomas, may be so numerous as to cover the entire body. With such extensive involvement, the differentiation between neurofibromatosis on the one hand, and the adenoma sebaceum and fibromas associated with tuberous sclerosis on the other, occasionally arises. The epidermis overlying a neurofibroma may be colored brown (figure 8) with café au lait spots (ephelides or junctional nevi), independent of the neurofibromas or in association with them. Since similar lesions occasionally occur directly within nerve trunks, where they appear to be malignant more often than in the skin, awareness of the exact nature of cutaneous nodules becomes of fundamental importance.

The relatively uncommon *dermatofibrosarcoma protuberans* consists generally of a single smooth cutaneous nodule which may clinically resemble neurofibroma but which pathologically appears to be related to sclerosing hemangiomas. Despite the term "sarcoma," this tumor rarely metastasizes but may grow to striking and deforming proportions particularly on the head and trunk or may give rise to satellite nodules. Tumors of this type are not generally reported in children but, since they do occur in young adults who give a history of slow growth over a number of years, it is probable that their inception occurs in early life. As indicated, the point to be emphasized in connection with these lesions is a therapeutic one; these tumors should be treated conservatively by local excision.

*Dermatomyomas* occur in children and also in very young infants when they may be remarkably like the reddish nodules associated with the malignant histiocytoses (figures 9 and 10). In adults such nodules are almost always painful, but this clinical criterion is not a useful one in young children. The occasional occurrence of these tumors during childhood has generally been in multiple form, particularly on the face, and present as dull purplish red, occasionally ulcerated nodules which may be as large as 2 to 3 cm. Although the likelihood of sarcomatous transformation is not so great as in neurofibromatosis, nevertheless, malignant forms of this tumor do occur in adults. Here, too, even though the pathologist may feel it imperative to designate certain of these tumors "sarcomatous" on the basis of isolated anaplastic cells, the prognosis must not necessarily be blanketwise despaired of because of the term. The dermatomyosarcomas in children or adults are aggressive only in rare instances. The urgency for diagnosis by pathologic examination, however, is based on the desirability to avoid the use of radiation, a form of therapy sometimes employed as a result of the clinical confusion of the dermatomyomas with malignant histiocytoses.

## Nevi and Melanomas

*Nevi in Childhood.* Nevi are by far the most commonly encountered tumors of children, although medical treatment is solicited only for those of unusual appearance. By the term "nevus" reference is herein made only to those tumors composed of pigmented dopa-positive nevus cells and not to the whole gamut of congenital cutaneous blemishes. Most nevi so defined are evident at birth, or shortly thereafter, and during childhood are often larger and more actively growing than during adult life. There is great variation in the size and appearance of nevi. In many instances they are multiple minute lesions scattered over the body; others may be so large as to involve the whole trunk. These larger nevi may be confused with the juvenile form of

acanthosis nigricans. The symmetrical distribution of the latter, particularly in the groins and axillae and on the trunk, is distinctive and, of course, the histologic appearance is merely that of a pigmented acanthosis. It is also pertinent to mention here that the juvenile form of acanthosis nigricans has not been associated in any statistically significant incidence with malignant visceral tumors, as in adults. The café au lait spots of von Recklinghausen's disease may also be confused with nevi but clinically are usually associated with some other manifestation of the disease and pathologically usually consist only of prominent basal pigmentation similar to freckles, although occasionally they may progress to the stage of a junctional nevus.

*Significance of Junctional Nevi.* During childhood the histologic appearance of ordinary nevi is so characteristic that an estimation of the age of the patient is generally easily made on histologic examination alone. This tell-tale structure is based on

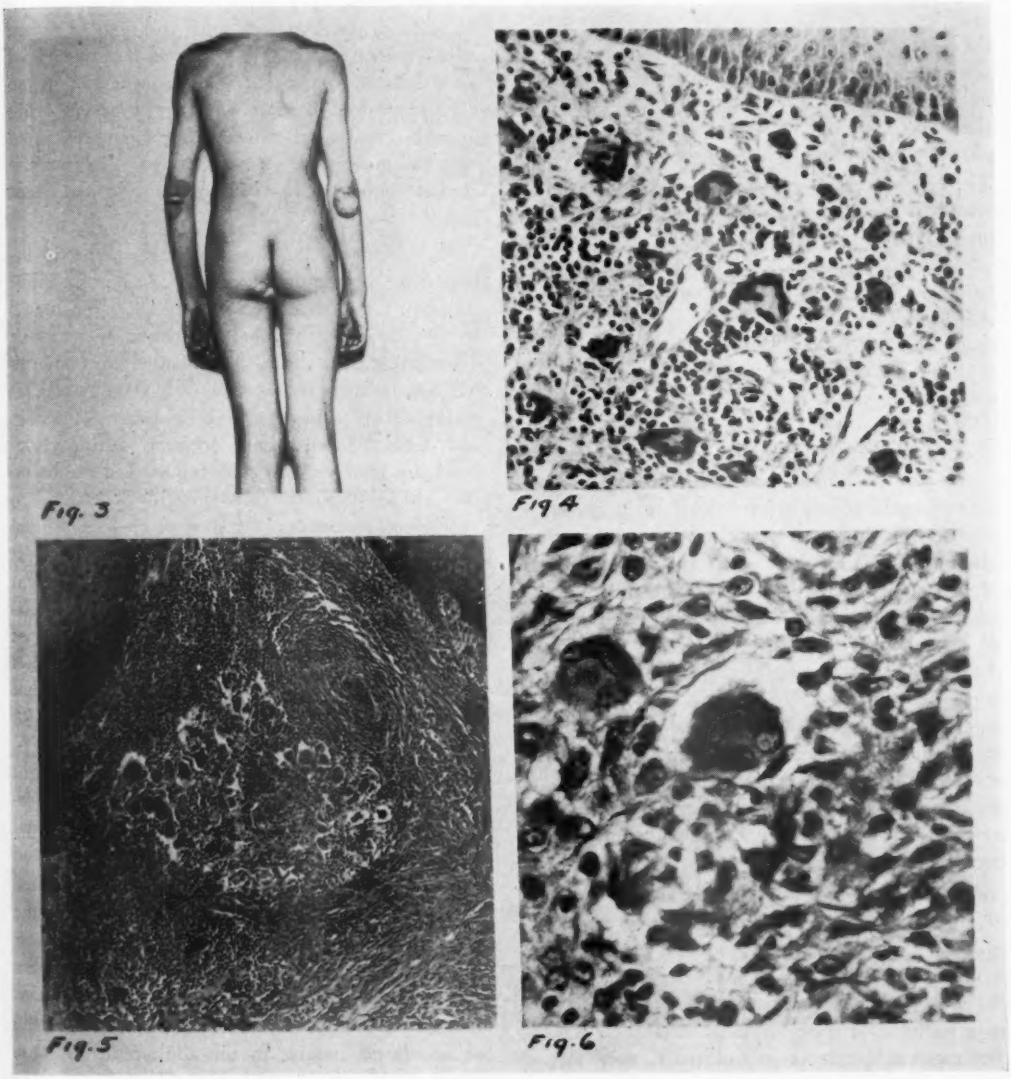


**Fig. 3. Juvenile xanthomatosis. Note characteristic extensor distribution. Fig. 4. Juvenile xanthoma. Touton giant cells prominent. Fig. 5. Insect bite, showing granulomatous reaction. Fig. 6. Insect bite. Note similarity to figure 4.**

the fact that the benign nevus of children is far more cellular than the ordinary nevi of adults; the upper levels of the dermis are crowded with small, closely packed, often heavily pigmented nevus cells which are generally of uniform size and shape. The lower portions of the benign nevus of children may show gradually diminished cellularity and pigmentation; unlike the benign nevi of adult life, the structures resembling lames foliacées are seldom found in the nevi of children. Moreover, both the epidermis and dermis are involved in the formation of the nevi of children in 98 percent of instances (figure 11); that is, nevus cells are present singly and in clusters within the epidermis. The extreme cellularity of many of the nevi of infants has led to their erroneous interpretation as malignant melanomas by pathologists unaware of this cellular phase in the evolution of benign pigmented nevi.

The involvement of epidermis and dermis in nevi has been designated as "compound nevus."[5] The "junctional change" (referring to the involvement of the epidermis) consists of enlarged pigmented cells, singly and in clusters, located predominantly in the basal layer of the epidermis. This junctional change, so often present in the nevi of children, is found in from only 12 to 25 percent of the intradermal nevi of adults (figure 12).[5,6] It is from some of the compound nevi in this small residue in which the junctional change is retained in adult life, and in those that are purely junctional, that the malignant melanoma of adults may develop.[5] It is commonly known, too, that about half the malignant melanomas of adults occur on the lower extremities and the sole of the foot is a most common site. The explanation of this latter fact lies in the observation that pigmented lesions on the soles (as well as the palms and genitalia where melanomas are also frequent) almost invariably exhibit the junctional change in the form of pure junctional or compound nevi. Inasmuch as junctional or compound nevi are the source of cutaneous malignant melanomas, their preponderance on the palms, soles, and genitalia accounts for the high incidence of malignant melanomas in these locations.[5]

*Melanomas in Childhood.* It is probably the very cellular appearance of the ordinary benign nevi of children (figure 11) that has led to the statement in the literature that the malignant melanoma is more common in childhood than any other epithelial tumor.[7] This is far from fact, since a fatal outcome from pigmented tumors in children is very rare. Occasionally, however, there occur in children pigmented lesions morphologically practically identical with the malignant melanomas of adults. These are clinically smooth, elevated, brownish red, and hairless (figure 13). In the records of Memorial Hospital,[8] 13 of these "juvenile melanomas" have been found and only in one from the sole of the foot in a female of twelve years was the outcome fatal. Other cases too have been reported in children,[9] in which there were recurrences and even metastases with survival, nonetheless, for many years.

The structure of these juvenile melanomas is remarkably similar to that of the fatal adult melanoma and includes epidermal alterations consisting of loosened enlarged pigmented cells as well as infiltration of the dermis by cords and nests of tumor cells (figure 14). In a few instances multinucleated giant cells are found that seem to occur more often in children than in adults. This structure occurring in melanomas after puberty has been associated with the most grave prognosis but in children the clinical course has rarely been that of a malignant tumor.

An explanation of this remarkable disparity between the histologic appearance and the clinical course of melanomas in children has been postulated on the basis of hormonal control of melanomas. There must exist during childhood a hormonal inhibition to the fatal spread of melanomas. This theory is emphasized by those fatal cases of malignant melanoma that have occurred during childhood; for instance, two cases reported in the literature[10,11] of congenital melanoma of the skin with widespread metastases shortly after birth. The fatal case already cited[8] occurred in a female child at twelve years. There has also been noted apparent acceleration in the fatal course of malignant melanomas during pregnancy, and recently a case of transplacental metastasis to the fetus in a mother dying of metastases from malignant melanoma has been observed, the child dying, within a year, of visceral metastases. These periods of life, that is, birth, puberty, pregnancy, are notoriously fraught with hormonal instability. Nathanson and his coworkers[12] have proved that the pattern of hormonal excretion changes between the ages of eight and eleven years and that cyclic excretion is established in female children more than a year before the menarche. The conclusion that sexual maturity is only a culmination of endocrine development which starts about five years before puberty is useful groundwork for much investigation in the field of neoplastic diseases in the adolescent. In those instances in which transplacental melanomatous metastases were noted, it is presumed that the infantile tissues are receptive to implantation because

the hormonal status at birth in some ways approaches that of the mother.

While the peak of incidence occurs after the fifth decade of life, many malignant melanomas are seen during early adult life. The rise in deaths after the age of puberty is so sharp that it would seem mandatory to remove, before puberty, by simple surgical excision, wherever feasible, all nevi occurring on the soles, the palms, the scrotum, and vulva, as well as those that are growing or that are of any unusual appearance, and especially those in positions liable to repeated trauma, particularly on the lower extremities. Since metastasis from melanomas during childhood is so rare a phenomenon, the conviction is firm that propyhlactic removal of these lesions during childhood, and certainly before puberty,

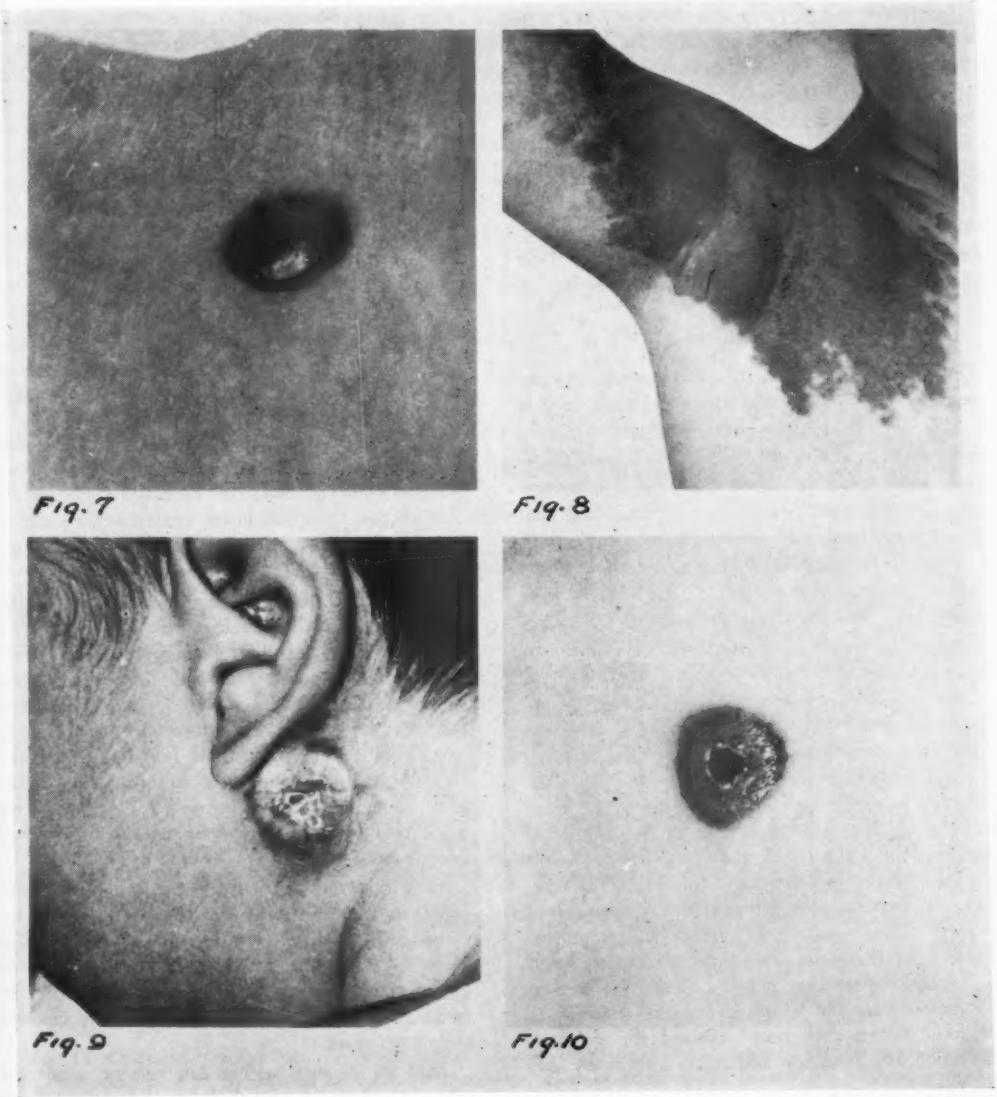


Fig. 7. Neurofibroma. Clinically similar to histiocytosis (figure 10). Fig. 8. Cutaneous pigmentation associated with neurofibroma. Clinical appearance similar to nevus, but note underlying tumor. Fig. 9. Dermatomyoma, child aged 6 weeks. Note similarity to histiocytosis (figure 10). Fig. 10. Histiocytosis, single lesion, clinically similar to dermatomyoma, insect bites, etc.

would materially reduce the incidence of the fatal malignant melanoma of adult life.

*Blue Nevi.* Another pigmented tumor occurring in children has frequently led to the mistaken diagnosis of "melanosarcoma." This is the blue nevus (Jadassohn-Tiéche) which often occurs on the dorsum of the hands and feet and on the buttocks. The blue nevus is generally smooth, very dark (figure 15) and may be mistaken for malignant melanoma clinically because of the heavy pigmentation and pathologically because of its cellular structure. Histologically, this tumor, similar to the Mongolian spot of infancy, is composed of characteristic, densely packed, spindle cells often arranged in fascicles (figure 16). A basic difference between the blue nevus and the melanoma is the absence generally of epidermal participation in the blue nevus (figure 17), although occasionally there may be an associated intradermal nevus. Regardless of the cellularity which characterizes this nevus, particularly in children, a malignant course is rare at any age.

## Hemangiomas

The hemangiomas constitute the most common tumor in children for which medical treatment is sought. The clinical appearance of these lesions, which are generally evident at birth or shortly thereafter, depends on the size and degree of proliferation of vessels, their position in relation to the skin surface, and also to the amount of blood circulating in them. In the capillary hemangioma the appearance is generally that of the common "port wine stain"; the cavernous type may be deep, infiltrating subcutaneous tissue and muscle or may appear in the skin as "strawberry marks."

The so-called hypertrophic hemangioma of infancy (figure 18) deserves noteworthy attention because of its appearance, which may simulate that of a malignant tumor both histologically and clinically. While this type of hemangioma is always bulky, there is considerable variation in the clinical presentation; if the lesion extends to the epidermis it is purplish red and may be ulcerated; often, however, the hypertrophic hemangioma is deep-seated and its vascular nature is not clinically evident. These large masses occur in the parotid area and in the neck where they may simulate hygromas or the various forms of lymphadenopathy common in children. When they occur around the genitals, ulceration and infection add to the diagnostic difficulties.

Histologically the typical infantile hypertrophic hemangioma is very cellular, composed of masses of endothelial cells canalized poorly or not at all (figures 19 and 20). The infiltration of these hemangiomas beyond the level of the skin together with their remarkable cellularity has led frequently to the diagnosis of angiosarcoma by those not familiar with this specific picture. Moreover, the frequent hemorrhages which occur in hemangiomas may, because of the heavy deposition of iron pigment, lead to a clinical or pathologic simulation of melanoma.

It has been generally agreed that hemangiomas undergo spontaneous regression in many instances, particularly since their incidence in adult life is so low. Nevertheless, parents are persistent in their determination to have the "birthmarks" of their children obliterated. Until recently, the most popular treatment for hemangiomas was the use of radium or x-radiation. Now, more acceptable treatment is based on the surface application of carbon dioxide snow or the injection into the lesion of various sclerosing agents. In the hypertrophic infantile hemangioma the treatment mentioned may be combined with surgical excision.

Late complications following the use of therapeutic radiation have become more evident now that several decades have passed since its rise to popularity. It is accepted that radium and x-rays may be clearly cancerogenic, particularly following their injudicious use. In the treatment of benign tumors such as hemangiomas, this fact, one not generally and adequately appreciated, constitutes a valid indication to choose, where feasible, other therapeutic methods.

Recently[13] there has been reported the development of multiple basal cell carcinomas on the chest of a five-year-old child following four x-ray treatments merely for presumably enlarged thymus shortly after birth. It is a frequent occurrence in the clinics of Memorial Hospital to find young women with scarred, atrophic facial skin in which multiple basal cell, or less frequently squamous cell, carcinomas have developed following the use of radiation for acne or hypertrichosis during their adolescence.

Even more serious than skin cancers are the osteogenic sarcomas recently described[14] following the therapeutic use of radiation mainly for benign lesions of bone. Of 11 cases cited, 6 were under the age of fourteen years, and the average interval between treatment and development of the sarcoma was eleven years.

Aside from such serious late effects, numerous other less serious but nevertheless deforming effects of radiation have been noted. Shortening of a leg has resulted from the incidental radiation of the femoral epiphysis in the treatment of a hemangioma

Fig. 11

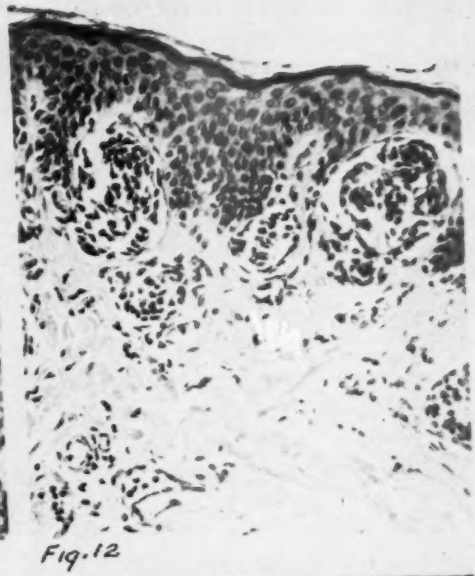

Fig. 12

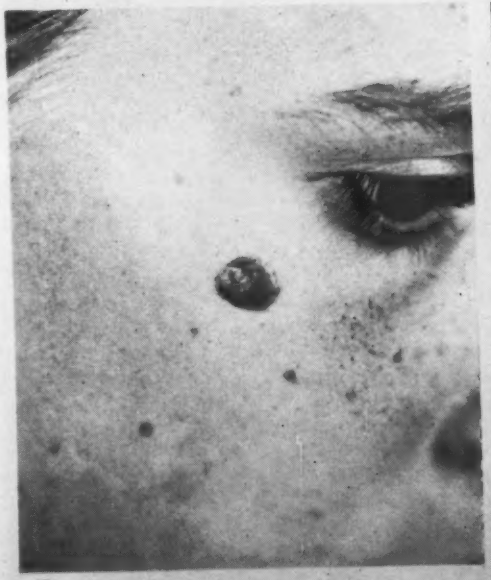

Fig. 13

Fig. 14

**Fig. 11. Compound nevus. Note combined epidermal and intradermal nevus cells and cellularity characteristic of childhood. Fig. 12. Junctional nevus. Note compact clusters of nevus cells concentrated in basal portion of epidermis. Fig. 13. Juvenile melanoma; smooth, reddish brown, and hairless. Fig. 14. Juvenile melanoma. Note large neoplastic cells in all layers of the epidermis and invasion of dermis. Contrary to benign behavior in children, this structure in an adult would indicate a grave prognosis.**

of the vulva; failure of development of the mandible or of the multiple teeth has followed radiation of such lesions of the face. Persistent scarring and ulceration requiring ultimate surgical excision and grafting of skin are frequent occurrences. Other possibilities, such as permanent damage to gonads by even small amounts of radiation, emphasize the great caution with which radiation should be used.

## Summary

It has been the primary perspective of this discussion to point out the disparity between the histologic appearance and subsequent clinical course in certain cutaneous tumors of childhood. In summary, these facts are evident: that the clinical course of the histiocytoses cannot be determined by the histologic appearance of cutaneous lesions; that the common benign nevus of childhood may, in the hands of those unfamiliar with the childhood features of this lesion, be frequently mistaken for malignant melanoma; that "juvenile melanomas," histologically similar to fatal adult melanomas, do occur, but do not have the serious clinical implications they have in adult life and should therefore be removed by simple surgical excision in childhood; that common lesions such as hemangiomas are generally better treated by methods other than radiation, and that, since there may be confusion clinically concerning the exact nature of certain cutaneous nodules, biopsy and histologic diagnosis are essential before the institution of therapy.

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**Description of illustrations on page 219:**

**Fig. 15. Blue nevus, dorsum of foot, clinically mistaken for melanoma because of heavy pigmentation. Figs. 16 and 17. Blue nevus. Cellular spindle cell structure, in fascicles. Note lack of epidermal involvement in contrast to junctional nevi and melanomas. Fig 18. Hypertrophic infantile hemangioma of vulva. Figs. 19 and 20. Hypertrophic infantile hemangioma, cellular structure canalized not at all or only poorly.**

Fig. 15

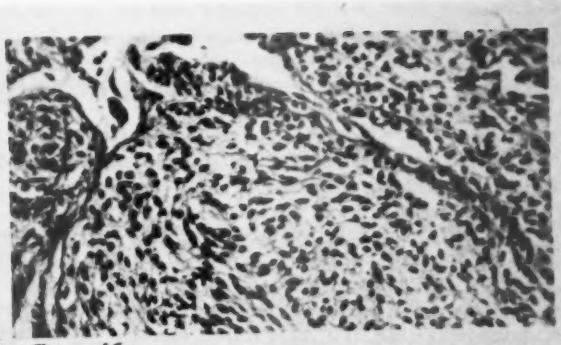

Fig. 16

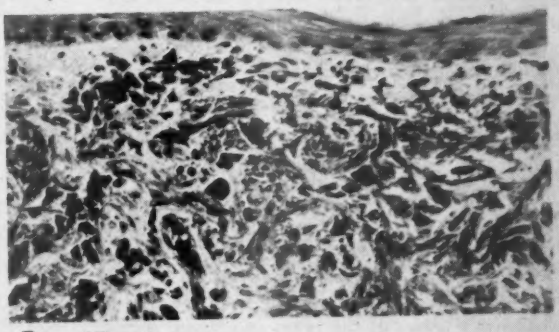

Fig. 17

Fig. 18

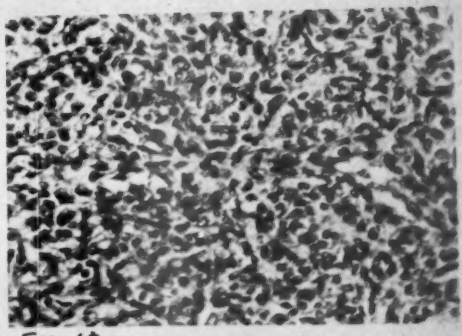

Fig. 19

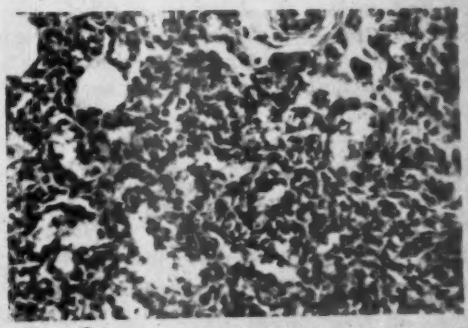

Fig. 20

# Multiple Sclerosis

**Kate Constable, M.D.**

CHARCOT'S CLASSIC DESCRIPTION of multiple sclerosis restricted the syndrome to only the characteristic "triad of symptoms," nystagmus, scanning speech, and intention tremor. During the more than 100 years since Charcot's original clinical description and Cruveilhier and Carswell's pathologic studies in 1835 and 1838, there has been an astounding amount of investigation; and although the ultimate solution is no more satisfactory now than it was then, there has come the realization that the syndrome is better conceived as a group of neurologic diseases with a variety of clinical manifestations and not one restricted to the original "triad" of symptoms. With the expansion of the syndrome which has been made chiefly during the past twenty-five years, the same precautions must be borne in mind which have always held in the differentiation of multiple sclerosis from the other degenerative diseases of the brain and spinal cord, namely, amyotrophic lateral sclerosis, primary lateral sclerosis, and primary degenerative cerebellar disease. Other conditions which may simulate multiple sclerosis are spinal cord tumors, syringomyelia, chronic adhesive arachnoiditis, and central protrusions of the cervical and thoracic intervertebral discs and hypertrophic osteoarthritic spurs compressing the spinal cord anteriorly. The differentiation of multiple sclerosis from these other neurologic lesions and particularly those which are amenable to neurosurgery is accomplished by careful and regular neurologic follow-up examination, as well as by use of a number of laboratory aids, including roentgen studies, lumbar puncture with manometric and total protein determinations, the electromyogram, and myelography. Inasmuch as there is no specific cure for multiple sclerosis, it is inexcusable not to rule out the neurosurgical problems.

Multiple sclerosis is described in the literature as a chronic progressive disease of the nervous system, characterized by remissions and exacerbations. It is also said to be a disease primarily of young adults, not hereditary, and having no specific environmental factors. On the other hand, multiple sclerosis not infrequently has its incidence between the ages of 45 and 50, and it has been reported in young children. In a group of 15 patients, which I have been following closely in the past 20 years, two had their first symptoms at 22 years of age, six between 27 and 29 years, three at 31, 32, and 33 years, one at 38 years, and three after the age of 50.

The disease is said not to be hereditary. It has been reported as occurring in siblings and in family groups, which indicates at least that there may be some familial predisposition. Multiple sclerosis seems to be more prevalent in northern countries and colder climates, such as England, Germany, and Scandinavia, as well as in the northeastern part of the United States. It is rarer in Italy and other southern European countries, and is rarest in Africa, India, the Far East, and Australia. Several studies have been made proving that the occurrence of the disease is often more frequent in localities where artificial fertilizers have been used for long periods in the soil where food is grown.

Infections, intoxication with heavy metals, pregnancy, childbirth, and trauma have all been implicated as predisposing factors. Both sexes seem to be equally susceptible, though some believe that women are more prone to be attacked than men. Persons of asthenic physique, tall of stature, dark haired, and vasolabile are believed to be the physical type most frequently victims of the disease.

The cause of the disease is still unknown, though there have been many theories which favor one or another etiologic agent or predisposing factor. Some authorities have thought that a micro-organism or a virus or some blood-borne agent was the causative factor. Allergy has been suggested as an etiologic agent. Toxic substances, both endogenous and exogenous, have received their share of attention. However, none of these theories has been thoroughly accepted by even a small majority of neurologists.

On the other hand, the pathologic results of the still unknown agent or agents are fairly well known and accepted, although the genesis of the changes is still a matter of controversy.

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The pathologists Cruveilhier and Carswell, in 1835 and 1838, described the typical circumscribed patches of myelin sheath destruction which they considered the primary pathologic lesion. The destruction in the axis cylinders was believed to be secondary to or the result of the destruction of the myelin sheath. The axis cylinders, therefore, are believed to undergo less extensive degeneration than the sheath, since in some areas of complete demyelization, the axis cylinders may be seen in various stages of degeneration, or swelling, or even in a relatively intact state.

The life history of such a patch of demyelinization is said to consist of several stages: (1) that of active proliferation of various glial structures; (2) phagocytosis of degenerated myelin; (3) absorption of resultant lipoid material; and (4) the eventual formation of a glial scar or plaque, which can be considered the end result of the process and is the typical pathologic finding in multiple sclerosis.

The plaques, which can at times even be seen macroscopically, most frequently are found in the white matter of the brain and spinal cord. Hence, multiple sclerosis has been considered a disease attacking chiefly white matter of the nervous system. However, the gray matter of both cranial and spinal nerves is not altogether spared, as the clinical course of the disease so well illustrates.

In more recent years it has been pointed out that these sclerotic plaques tend to distribute themselves around or in close proximity to the blood vessels of the nervous system, both arteries and veins. And this fact of localization was believed to be a step toward unraveling the question of etiology. But, so far, no convincing evidence of definite inflammation has been demonstrated in these areas of demyelinization, in any of the stages of its progress.

Phlebothrombosis is seen, primarily in the vessels of the white matter. On the assumption that the circulation is slower there and that the compensatory collateral circulation is less than in the gray matter, this has been given as the reason for the apparent selectivity of the disease for the white matter, rather than the gray. The selectivity is, therefore, more apparent than real.

The controversy regarding the pathogenesis of the disease can be briefly summarized by the theories of the three best known and accepted authorities on multiple sclerosis. Hassin, for instance, believes that multiple sclerosis is a purely degenerative disease of possibly endogenous origin and that it is not etiologically related to either inflammatory agents or vascular abnormalities.

Putnam, on the other hand, theorizes that the primary conditions producing the degeneration are vascular engorgements and thromboses with perivascular hemorrhages as seen in acute lesions and obliterative vascular changes as seen in chronic lesions. To explain these vascular changes one must postulate "an unknown abnormal factor," in the blood-clotting mechanism. This factor, by reducing the coagulation time of the blood, renders it more sensitive to both endogenous and exogenous toxins. What this abnormal factor is, we do not know.

Marburg postulated as a third theory that the primary factor is in the nervous system itself; that the swelling and degeneration of the myelin is secondary to the swelling of the axones, and not the reverse, as is ordinarily considered; and that this process is reversible.

This last theory can best be correlated with the clinical course of the disease, which is that of exacerbations and remissions, partial or complete, and a course that runs for many years.

Although the onset of the disease was described originally as insidious and indefinite, it may nevertheless be acute. In the classic type of case, a long-standing history of fatigue, general muscular weakness, and exhaustion often can be obtained, antedating by many years the spasticity and ataxic gait which finally brought the patient to seek a neurologic opinion. On the other hand, an acute onset of symptoms does not necessarily mean that the course is one of rapid progress downhill.

The onset of the disease, as well as the exacerbations, which probably indicate the possible development of new lesions, is often characterized by paresthesia and sensory disturbances. Loss of position sense and vibratory sensitivity and astereognosis may occur, as well as loss of other sensory modalities. Objective sensory changes are frequently variable, as we will discover on subsequent examinations, and often disappear as completely as the subjective symptoms.

Pain is not a common complaint, though trigeminal neuralgia may occur in the course of multiple sclerosis and presumably is a part of the disease, rather than an unrelated entity. When the cerebellar pathways are involved, ataxia, nystagmus, and intention tremor may occur, as well as such functional motor disturbances as slow, scanning, or staccato speech, which is the result of incoordination and ataxia of the laryngeal muscles. Urinary dysfunctions, such as frequency, urgency, and incontinence, occur usually late in the course of the disease and are due to lesions primarily in the spinal cord.

Mental symptoms are frequently seen. Euphoria is the most prevalent, and fluctuations in mood, emotional lability, depressions, and even mild psychoses may develop in the course of the disease.

The most characteristic as well as the most disabling symptom of multiple sclerosis is weakness and spasticity of the extremities. This, however, is not always the most prominent symptom, for it may be so slight as to be of only minor importance to the patient. More often it is the symptom which is the most handicapping. However, though it may not always be the most prominent symptom, sooner or later all cases of multiple sclerosis will develop some pyramidal tract signs. On the other hand, as in the cases of sensory changes, these have been seen to be reversible and have not always progressed relentlessly to cause total and permanent changes.

Retrobulbar optic neuritis is frequently seen, not only in the course of the disease but often as a first and isolated symptom; as the probable initial lesion, its significance may not be recognized until years later. Likewise, most cases of multiple sclerosis show some evidence of pallor of the optic discs. Without recognition of a preceding history of optic neuritis, the atrophy is considered primary.

Positive and characteristic laboratory findings in multiple sclerosis are conspicuously few. Blood counts, blood chemistry, urine examinations, and sedimentation rate determinations show no significant changes from the normal.

Merritt has said that the spinal fluid is normal in about 20 percent of the cases which he studied. A moderate pleocytosis (6 to 40 cells) has been found in 28 percent of his cases; a slight increase in protein in 24 percent; abnormal colloidal gold curve in 71 percent; but these changes are not pathognomonic. Kabat has recently reported that the gamma globulin fraction, in the absence of a change in total protein, has been found elevated in 85 out of 100 cases of diagnosed multiple sclerosis. However, this increase has likewise been found in other neuronal diseases, including neurosyphilis as well as multiple sclerosis, and though it may be a help in establishing a diagnosis, it is by no means infallible.

To illustrate some of the clinical characteristics of multiple sclerosis, an analysis of a group of 18 cases is offered. These cases have been repeatedly examined and followed to date, many from the onset of their first symptoms over a period of time, ranging from seventeen years to six months. Five are men and thirteen are women. Three had the onset of symptoms between the ages of 21 and 22 years; nine between the ages of 26 and 33 years; three between 38 and 40 years; and two after the age of 50 years, at 52 and 53 years, respectively. The average age at onset, for both men and women, was 32 years. One of the patients has had symptoms for 23 years; two for 19 years; one for 18 years; and one each for ten years and six years; two for four years; seven for less than two years. The average duration of symptoms has been six years.

The ultimate survival period for multiple sclerosis is variable, though 20 years has not been considered unusual. Autopsies on three patients who lived 30, 31, and 64 years, were recently reported from Columbia University. Therefore, most of those in this group of 18 patients can be considered to be in a relatively early stage of the disease.

Whereas the chief characteristic of multiple sclerosis is usually thought of as a motor disability, in this group of patients only two had motor dysfunction as their first and presenting symptom. Both of these patients were 50 years of age at the onset of the disease and their primary complaint was stiffness and heaviness in the lower extremities.

Of the other 16 patients, eleven developed motor disabilities in the course of the disease, but four have escaped motor involvement altogether, one for six years, the others for two years, one and one-quarter years, and two-thirds year, respectively. But of the 12 patients who have had disturbances of gait or motion at one time or another, only one is on crutches, three require canes, and nine are still able to continue at their occupations as usual, though they either have or have had some spasticity in gait.

All 18 patients at some time during their course have had hyperreflexia, whether or not they have had demonstrable motor weakness. Twelve have had positive Babinski signs, either unilateral or bilateral. Five of the six patients who have never had positive Babinksi response have had equivocal findings; that is, neither definite plantar flexion nor extension. Five patients who have had positive Babinski signs during periods of exacerbation have later had normal plantar flexion during their remissions. Four patients have had no motor weakness of any kind; seven have had weakness without spasticity, six for transitory periods only, one more or less chronically over a period of years, and four have both weakness and spasticity which is either stationary or slowly progressive. Thirteen of the patients, who had other signs of pyramidal tract involvement, had normally active abdominal reflexes.

Cerebellar signs, such as positive Romberg sign, nystagmus, dysmetria, and ataxia in non-equilibratory tests, have been found in 13 of the 18 patients. In 11 of these 13, the signs have been transitory and variable from time to time. In only two have these signs been progressive; these two patients were those whose other signs and symptoms have likewise been progressive and relentless.

Retrobulbar neuritis was the chief presenting symptom in five patients. Two of these patients did not develop further symptoms of the disease until

16 and 13 years later; two had retrobulbar neuritis and other symptoms simultaneously. Two developed optic neuritis during the course of the disease; one a unilateral retrobulbar neuritis seven years after the onset of her first symptoms, the other a mild, transitory, difficulty in vision with no objective findings in the fundi two months after the onset of the disease. However, with no further acute symptoms, she was found to have marked optic atrophy two years later. Three patients, who had given no history of previous visual disturbances of any kind, were found to have some mild degree of optic atrophy. Eight of the 18 patients have normal optic discs. Only two patients have reported diplopia: one who had a transitory episode nine years before the onset of symptoms which were recognized as multiple sclerosis; and one in whom diplopia and external ocular muscle weakness has been a persistent symptom since the onset one year ago.

Pain has been complained of seldom in this group of patients and has never been a serious complaint.

By far the most usual presenting symptoms have been sensory. Paresthesia and weakness, both subjective and objective, have been the most frequent complaints at the onset of the disease. Even in those cases in which motor symptoms have later become the predominating feature, numbness and paresthesia have preceded as the original complaints. Eleven patients have given this as their first symptom. These symptoms have frequently been transitory, involving one or more extremities, unilateral or bilateral, or one or both sides of the face and head. Several patients have described the onset as sudden. Four have had positive Lhermitte signs, i.e., sensation of tingling from the neck down on forward flexion of the head. In one patient transitory numbness developed in one leg five years after the occurrence of an optic neuritis and six years before the onset of spasticity in the lower extremities. In two patients numbness developed at the onset but was secondary in importance to other complaints. Another patient noted a feeling of coldness and impaired position sense in one leg. One patient, whose onset was acute, had paresthesia of the fingers, also ataxia, vertigo, weakness, and difficulty in vision. Four of the patients have had astereognosis in one or both hands at one time during the disease. Only three of the eighteen have had no sensory complaints or findings at any time.

Two patients with transitory subjective sensory complaints were diagnosed as conversion hysteria two years and several months, respectively, before the onset of symptoms sufficiently definite to establish the diagnosis of organic disease. Objective sensory findings varied from more or less definite dermatomic levels in seven patients and posterior column changes in four patients, to patchy, variable changes in extremities and face, suggestive of peripheral neuritis. Five patients have had no sensory changes at any time.

Only five patients have complained of urinary dysfunction, urgency, and frequency. One man has a recurrent anosmia, without known cause, such as sinusitis or upper respiratory infection; this is probably specific of the disease.

None of the patients in the group has shown any marked euphoria. However, one girl whose disease is subacute in the initial stage has been emotionally labile and her spontaneous laughing has been without the appropriate accompanying emotion.

Laboratory findings have been significantly noncontributory in these patients. The cerebrospinal fluid protein has varied from 26 to 57 mg. in the eight in whom these results have been recorded. Manometric studies have revealed no evidence of subarachnoid block. Two patients had 15 and 20 lymphocytes in the spinal fluid. Three patients had x-ray evidence of some osteoarthritis in the cervical spine, with reversals of normal curvature. Two had definite levels in the cervical cord by electromyographic studies. In one of these patients this level could no longer be demonstrated on later study, after a lapse of several months. One patient had a myelogram to rule out a focal cervical cord lesion.

Two patients had mild secondary anemia, one had both red count and hemoglobin above normal, and two were found to have no free hydrochloric acid in their fasting gastric specimen. One patient was found to have abnormal deposits of heavy metal, lead, copper, and silver, in his skin by spectroscopic examination, though blood and urine were normal.

Of these 18 patients, five are at present without complaints and are carrying on a normal schedule of activities; one had the onset of his first symptoms 18 years ago. Eight patients are able to live normal lives and work, though with more handicaps and complaints. Only four are unable to continue with an active life. One of these is a woman whose first symptoms occurred 23 years ago and who was able to continue to work as a secretary until the retirement age of 60 years, one year ago. Another is a girl of 26 years, with marked spasticity of the lower extremities, who is able to walk only with crutches. The duration of her symptoms has been relatively short and the course of the disease unusually rapid. The third is a lawyer, whose visual loss as well as spasticity makes it impossible to follow his career. He is, however, able to walk with the aid of a cane. The fourth is a young woman, whose first symptom developed only one year ago, and who is on enforced rest at the present time.

There is no specific nor universally accepted treatment for multiple sclerosis. This does not mean, however, that multiple sclerosis cannot be treated symptomatically. Breckner introduced the use of quinine, on the theory that a lipase dissolving enzyme was the demyelinizing agent and that quinine deactivated this enzyme. Quinine is still in use by many neurologists.

Many other modes of therapy have been used and abandoned. In the early 1930's, when fever therapy was in vogue in the treatment of paresis, it was also tried in a few cases of multiple sclerosis. The results were universally unfortunate. Forced spinal fluid drainage had its day, and in a few cases it was temporarily effective. It produced no untoward results as did hyperthermia. Cervical sympathectomy, it was hoped, could alter the course of multiple sclerosis by increasing the peripheral blood flow and circulation to the spinal cord. It was tried by various surgeons, with some temporary relief in acute exacerbations of the disease. Histamine, on the theory that multiple sclerosis may be on an allergic basis, is being used in some clinics. Cortisone and ACTH, not extensively used yet, have however given no evidence of being the dramatic therapeutic agents that they have been for other chronic diseases. Vitamins B and E, and more recently Vitamin A, are being used empirically by most clinical neurologists. Wise physiotherapy, in the form of relaxing massage for spasticity and reeducation for affected skeletal muscles, is an adjunct to whatever drug therapy may be used and is an indisputably valuable agent.

The most valuable therapeutic agent is probably the point of view of the neurologist treating multiple sclerosis, his approach to the patient, and the patient's mental response to his approach. When a patient presents either unmistakable or suggestive symptoms of multiple sclerosis, whether early or late, it is never wise to make too final a diagnosis and prognosis. Too often this closes the gate to further investigations that may either disprove the diagnosis or reveal the presence of physical or physiologic derangement other than neurologic, which can and should be treated accordingly.

To the patient, a diagnosis of multiple sclerosis or the possibility of this disease is often a sentence of doom, for he or his family may well be familiar with an advanced and totally handicapped patient with this diagnosis.

A patient with a diagnosis of probable multiple sclerosis deserves a thorough physical and laboratory investigation, not only of the spinal fluid dynamics and chemistry with x-rays of the skull and spine, but complete medical studies. A secondary anemia, an achlorhydria, a low basal metabolism, or a chronic infection, should be treated as specifically as if it were the matter of primary concern. The patient's general health should be kept at an optimum standard at all times.

A regime should be laid out for the patient with multiple sclerosis; one which will avoid undue exercises and fatigue, either at work or in outside activities. Pregnancies are considered undesirable and should be avoided if possible. However, one patient who has made a good recovery, did so as she went through her fifth pregnancy. During this period enforced rest, both mental and physical, was adhered to strictly.

Any recurrence of symptoms or exacerbation of symptoms, as well as the onset of symptoms, no matter how mild, should be treated primarily by a period of complete rest, until such symptoms subside. Return to active life should then be gradual and under medical supervision. Chronic invalidism is as undesirable as unlimited activity and the latter may well lead to the former. Exertion beyond the patient's physical strength should always be avoided. A happy average can be followed if one tries.

One of the patients in the group under analysis, whose symptoms began 18 years ago, is still at work and symptomless at the present time. He has had several exacerbations, and in each, as well as at the very onset of his first complaint of paresthesia, rest was enforced, sometimes ad nauseam to the patient, but probably with the result that he is still at least 90 percent normal. Another patient, whose disease has run a course of ten years, has had similar treatment and with similar result.

Of two patients whose symptoms began four years ago, with paresthesia, both diagnosed as psychoneurotic at the onset, one is still at work and comparatively symptom free; the other is the most handicapped in the group. The second patient was allowed to work, without treatment or advice, until at the end of two years she was almost totally handicapped and is now on crutches. The first patient, who was seen shortly after the first return of symptoms, when a diagnosis of multiple sclerosis was made, has learned the value of rest. This girl had an acute exacerbation after an exhaustive two-mile walk through a blizzard, but made a satisfactory recovery. The second most handicapped patient in the group had at the onset, 19 years ago, an optic neuritis which was treated by fever therapy.

To such a controlled regime of life can be added vitamin therapy. Its value in producing the reversible objective changes which occur is not provable, but clinically the course of the disease seems to be ameliorated.

Above all, the attitude that "nothing can be done" should be studiously avoided by both patient and doctor.

# Diagnosis of Uterine Abnormalities

## • VALUE OF HYSTEROSALPINGOGRAMS •

**Asta J. Wittner, M.D.**

In 1939, the decision was made to include hysterosalpingograms as aids in the study and diagnosis of cases of sterility at the New York Infirmary. By their use it has proved possible to diagnose with greater accuracy many abnormal conditions of the cervix, uterus, and tubes, conditions which pelvic examinations and even Rubin tests were unable to disclose, so that patients can be advised to return for further hormone therapy, or for diathermy, cauterizations, or other procedures, in the hope that underlying conditions can be corrected. On the other hand, it has become unnecessary to keep patients returning endlessly, hoping for pregnancies which can never occur. The diagnosis of polyps, large intramural fibroids, congenital defects, and even carcinoma can be made immediately. When necessary, patients can be told conclusively that they cannot have children of their own, and they can then go about the task of arranging for adoption. Then, too, patients have been more receptive to suggestions for elective surgery, which they had naturally put off while they still thought pregnancy was possible.

In our series of cases it was found that 40 to 50 percent of all the films revealed definite pathologic conditions requiring either radical or minor surgery to make pregnancy possible.

The simplest form of equipment is used, with iodochlorol as the medium. Fortunately, there have been no infections, intravasations, or ruptured tubes in the entire series. With the advent of the antibiotics there is no hazard of infection. Because of our findings of so many abnormalities, we have concluded that hysterosalpingograms should be part of the routine examination of all women with pelvic disturbances. The contraindications and limitations of the test should of course be kept in mind at all times. Ten cases are cited to illustrate the findings and results in our studies.

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### Case Reports*

CASE I. Mrs. L. Sterility, 6 years. Habitual abortions occurring at the first or second month; in the past two years she has had three abortions. General check-up was negative. Hysterogram revealed multiple polyps of the endometrium with a mild adenomyosis. Dilatation and curettage, in 1941, were followed by pregnancy, which in spite of threatened miscarriage was successfully terminated in December, 1942, with a full term male child.

CASE II. Mrs. S. Sterility, 4 years. History and check-up negative except for spotting between menses. Hysterogram revealed endometrial polyps and polyps at the internal os. Dilatation and curettage were followed by pregnancy and a full term living female child.

CASE III. Mrs. R., Sterility, 7 years. She had previously been told that the Rubin test showed patent tubes and for several years had received costly hormone treatment. Hysterogram revealed a double uterus, the horns of which appeared to be too small to permit the growth of a full term child. The patient was advised to try for an adoption.

CASE IV. Mrs. D., Sterility, secondary. She had had two miscarriages, one two years after marriage and again one year later. Miscarriages had occurred at the end of the fourth month. The Rubin test showed the tubes to be patent. The patient was given hormones and large amounts of thyroid. Hysterogram showed a large bicornuate uterus. If pregnancy should occur and go to full term, a rupture of the one large horn might result. The patient was advised to seek adoption.

CASE V. Mrs. F. Sterility, 13 years. The patient had had miscarriages at the sixth month and at the second month. In 1948, she had an "operation on the cervix," as her surgeon thought the cervix was causing the interruptions of pregnancy. In 1950, hysterogram revealed a large uterus and eccentric canal, with a filling defect in the left wall of the uterus and intramural and submucous myomata. Hysterectomy was advised, and no further attempts at pregnancy.

CASE VI. Mrs. S. Sterility, 4 years. History and check-up were negative, except for severe dysmenorrhea. Hysterogram revealed marked endometrial hyperplasia and endometrial polyps. Dilatation and curettage were done and a Wylie stem pessary was inserted on August 20, 1949. The pathological report was "marked hyperplasia." Last menstrual period October 9, 1949. A full term male child was born on July 8, 1950.

CASE VII. Mrs. L. Sterility, 4 years. Menses irregular, every five or six months. She had been given cyclogestrin, thyroid, etc. In October, 1949, hysterogram revealed hyperplasia of the uterus with definite endometrial polyps. Dilatation and curettage were done and a Wylie stem pessary was inserted. Following removal of the stem the patient was given cyclogestrin for three months. Last menstrual period, November 30, 1949. Zondek-Aschheim test was positive.

A living male child was delivered, August, 1950.

CASE VIII. Mrs. M. Sterility, 3 years. History and check-up were negative. Rubin test showed patent tubes. Hysterogram in November, 1950, revealed endocervicitis with acute anteflexion of uterus. The patient was advised to have dilatation and curettage with insertion of Wylie stem pessary.

CASE IX. Mrs. D. Married nine years. General check-up negative. Hysterogram revealed large irregular uterus, some flattening suggesting intramural fibroid. Right wall of the endometrium had a moth-eaten appearance, with irregular hyperplasia. Panhysterectomy was done one month later.

CASE X. Mrs. P. Sterility, 6 years. History of menses heavy with clots. Rubin test showed patent tubes. Pelvic examination revealed an enlarged uterus. The patient was anemic from blood loss each month but refused surgery because of the possibility of pregnancy. Hysterogram showed a large cavity greatly distorted by submucous and intramural fibroids. After seeing the films and discussing the impossibility of carrying a pregnancy to term, the patient consented to follow advice and have a supracervical hysterectomy.

These are but a few of the many cases we have followed through to term pregnancy, to operation, or to medical treatment.

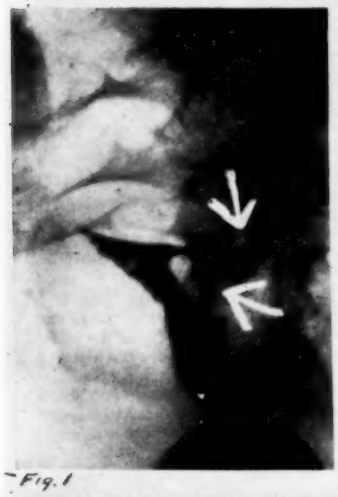

Fig. 1

Fig. 2

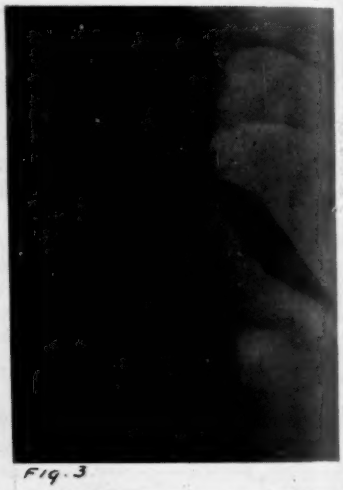

Fig. 3

Fig. 4

Fig. 5

Fig. 6

## Conclusions

As an aid to the diagnosis of abnormalities of the pelvic organs and as a guide in determining future treatment and the probable outcome of sterility problems, hysterosalpingograms are invaluable. The procedure is simple and quick and inexpensive. The final results are satisfactory to both patient and doctor. Many lesions are revealed which might appear innocuous on ordinary examination. More and more we are coming to realize the value of this procedure, judiciously used, in the diagnosis of gynecologic conditions.

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*Figures are numbered to correspond with cases.

Fig. 7

Fig. 8

Fig. 9

Fig. 10

# Erythroblastosis

## EXPERIENCE AT THE NEW YORK INFIRMARY DURING 1949

**Elizabeth Coultas, M.D., and Shirley Ferguson, M.D.**

THERE WAS MUCH STIR in the medical world when the brilliant deductions of several researchers identified a hitherto unrecognized blood element, the Rh factor, as the cause of previously unexplained stillbirths, neonatal deaths, jaundice, and anemia. However, as this information sifted down to the practicing physician, there were varied reactions. Some carefully checked all their patients and anticipated difficulties; others, either having no experience with or noting the relatively small incidence of erythroblastosis, not only taunted their more conscientious colleagues, but completely ignored the Rh status of their pregnant patients.

Therefore, it seems timely to emphasize what has always been considered a guiding principle in the service of medicine: that a measure, however many times it may be done unnecessarily, should never be omitted if it may save even one life. In this light, we shall present the manner in which this problem of erythroblastosis is approached by the Obstetrical Department at the New York Infirmary and shall cite cases of erythroblastosis encountered at this hospital during 1949.

### MANAGEMENT

The general management of the Rh negative patient may be outlined as follows: the blood group and Rh factor are determined at the first visit. If the patient is Rh negative, the husband's Rh factor is checked. If the husband is Rh positive and the patient is a primigravida without a history of blood transfusion, antibody studies are begun in the seventh month of pregnancy. These studies are repeated monthly until delivery. If the patient is a primigravida and had received blood transfusions before the Rh factor was known, she is treated as a multigravida.

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If the husband is Rh positive and the patient is a multigravida with no history of blood transfusions and with no history of erythroblastosis in previous children, antibody studies are begun in the sixth month, in order to determine residual sensitization, and are then carried out once a month until the last month of pregnancy, during which they are repeated weekly.

If the patient is a multigravida with a history of transfusion prior to 1946, and a definite or even suggestive history of erythroblastotic babies, antibody studies are performed as described above, except that during the last six weeks of pregnancy they are repeated weekly.

If a rising titer is found at the thirty-seventh or thirty-eighth week, and the condition of the cervix is favorable, induction of labor is attempted.

At delivery of an Rh negative woman, cord blood is taken for immediate typing and for Rh factor and hemoglobin determinations. If erythroblastosis is already present, a transfusion is given at once. The nursery nurses are instructed to observe the infant for pallor, jaundice, and irritability at frequent intervals and to report any suggestive signs without delay. The closeness of observation must be emphasized, for many an infant in excellent condition at birth has slipped precipitously into a severe state of erythroblastosis as early as within the first four hours and up to four days after birth.

In addition to clinical watchfulness, complete blood counts (including examination of the smear by an experienced technician) are made daily, or more often as indicated, during the first week. If nothing of an unfavorable nature has appeared at this point, it is felt safe to discharge the baby. When the counts of those affected with erythroblastosis have been stabilized by transfusions, they are discharged to out-patient care for weekly or bi-weekly blood counts, which are continued for six or eight weeks. In those babies who have had erythroblastosis, it is not unusual for anemia requiring transfusion to appear at about one month of age.

It is the policy at this hospital to treat babies with multiple small transfusions. Transfusion is indi-

cated at the occurrence of jaundice or pallor with a fall in hemoglobin or a rise in nucleated red blood cells above the normal neonatal level. In sensitized women, antibody studies are repeated before discharge from the hospital.

## Technique

Typing and Rh factor determination are performed in our laboratory. Despite the apparent simplicity of the direct slide method, the occasional development of transient, fine granulation (cause of which has not been definitely established) can be misleading and may result in report of a false positive Rh factor.

Antibody studies are done at the University (Post-Graduate) Hospital. The blood is tested for group, sub-group, type (M or N) Rh factor O, rh', rh", and hr'. Titers for the Rh antibodies are reported: agglutinins, (saline method with normal and with trypsinated cells); blocking antibodies (indirect method); and glutinins (plasma albumin method).

## Statistics

The total number of patients delivered at the New York Infirmary from January 1949, to January 1950, was 1,142. Of these, 48 were Rh negative, 4.2 percent. Distribution according to race was as follows: white 42; black, 1; yellow 1. Distribution according to number of pregnancies was as follows: gravida I, 22; gravida II, 18; gravida III, 2; gravida IV, 1; gravida V, 1; gravida VI, 3; gravida VII, 1.

Nine of the 48 patients were found to be sensitized to the Rh factor. All nine delivered erythroblastotic babies. Only one patient who showed no sensitization prior to delivery had a child with erythroblastosis. In addition, there were two erythroblastotic babies born of women found to be sensitized by the ABO mechanism.

## Case Reports

CASE I. A. G., 33-year-old gravida II, para O (first pregnancy terminated at nine months, stillborn breech, nine pounds and eight ounces, with cord around neck). Present pregnancy: fetal heart lost during nine-hour labor, delivered stillborn with yellowish excoriation of the skin, but no icterus of sclerae or mucous membrane. On third postpartum day, patient received a transfusion of Rh positive blood, reported compatible; discontinued after 200 cc. because of chill. Blood examined at University (Post Graduate) Hospital; the report was: patient Rh negative and sensitized. Postmortem examination of baby revealed erythroblastosis (confirmed by microscopic changes in liver, spleen, and bone marrow) due to Rh incompatibility.

CASE II. M. P., 29-year-old gravida V, para III (one macerated stillborn at eight months and three normal spontaneous deliveries; first two children normal and third jaundiced). The patient was originally typed Rh positive but because of a history suggestive of previous erythroblastosis, was retyped and found to be Rh negative. The expected date of delivery was September 27, 1949. Antibody studies were as follows:

| | Blocking | Glutinins |
|---|---|---|
| July 18 | Rh1 1:2 Rh2 1:2 | Rh1 1:64 Rh2 1:32 |
| August 17 | Same | Same |
| September 1 | Same | Rh1 1:64 Rh2 1:64 |
| September 6 | Rh1 1:1 Rh2 1:1 | Rh1 1:32 Rh2 1:32 |

On September 6, induction was unsuccessful. The patient was readmitted at the thirty-eighth week (September 13) from clinic, with a history of absence of fetal movements for two days; no fetal heart tones were heard. Following rupture of membranes, the patient delivered a seven-pound macerated infant with mild icterus of skin and sclerae. Postmortem examination of the baby revealed liver of normal size, spleen slightly enlarged, no kernicterus. Microscopic findings were atelectasis with erythroblasts in the pulmonary capillaries. Final diagnosis was erythroblastosis fetalis.

CASE III. M. J., 23-year-old gravida II, para I (full term normal spontaneous delivery of a nine-pound-four-ounce child in 1947). Patient was admitted at term with history of absence of fetal movements for two days. She delivered a macerated infant weighing ten pounds four ounces. The placenta showed scattered areas of calcification. The patient had been typed as Rh positive. However, on attempting to cross-match blood (she had had postpartum hemorrhage from a cervical laceration), agglutination appeared after incubation. Blood which was sent to the University (Post Graduate) Hospital revealed that the patient was Rh negative and highly sensitized. There was no history of jaundice in the first baby or of transfusion.

CASE IV. C. C., 22-year-old, type O, Rh negative, gravida II, para O (miscarriage at two months in 1947). The patient was admitted in premature labor initiated by spontaneous rupture of membranes at 35 weeks. She delivered a five-pound infant, which died in 24 hours. The diagnosis was prematurity with questionable erythroblastosis.

CASE V. H. B., 24-year-old gravida II, para I (full term normal spontaneous delivery of a nine-pound infant in 1945). The patient was admitted at 35 weeks gestation and delivered a living premature child. The mother showed no sensitization before or after delivery. There was no history of transfusion or of jaundice in the first child. The second child was type A, Rh positive. Blood counts on the baby were:

| | Hgb | RBC | WBC | Normoblasts |
|---|---|---|---|---|
| October 5 | ....18 | 4,980,000 | 9,150 | 14 |
| October 6 | ....15 | 4,970,000 | 11,000 | 9 |
| October 7 | ....15 | 5,030,000 | 15,000 | — |
| October 8 | ....15 | 4,630,000 | — | — |

Following a transfusion of 60 cc. of Rh negative blood, the count was:

| | | | | |
|---|---|---|---|---|
| October 10 | ...18 | 4,470,000 | 7,850 | none |

CASE VI. H. P., 30-year-old, type A, Rh negative, gravida VI, para V (last two babies had erythroblastosis; one required thirteen and the other eight transfusions). The expected date of delivery was September 20, 1949. Antibody studies were as follows:

| | Blocking | Glutinins |
|---|---|---|
| July 23 | None | None |
| September 1 | None | Rh1 1:1 Rh2 1:1 |
| September 14 | None | Rh1 1:2 Rh2 1:2 |

The patient was admitted to the hospital on September 20 and labor was induced by artificial rupture of the membranes. This was followed by the delivery of a seven-pound-five-ounce baby in excellent condition. The child was type A, Rh positive; hemoglobin 16 Gm. Nine hours after delivery, slight jaundice appeared. At this time the hemoglobin was 19 Gm., red blood cells 3,660,000 with marked polychromatophilia. Two transfusions of 50 cc. each were given without reaction (Rh negative blood used). The child was discharged on the sixth day with jaundice practically gone. The last blood count showed hemoglobin, 17 Gm., red blood cells 5,400,000; white blood cells 22,000; with 2 blast cells. The baby was admitted to the pediatric ward at one month of age because of anemia. Hemoglobin, 8.7 Gm., red blood cells, 2,720,000, white blood cells 21,150. Two transfusions of 70 cc. each were given. The child was discharged in three weeks with hemoglobin of 12.7 Gm. and red blood cells 4,010,000.

CASE VII. A. O., 29-year-old gravida II, para I (full term spontaneous delivery) delivered at thirty-eight weeks an apparently normal six-pound-nine-ounce male. Deep jaundice and palpable spleen appeared less than twenty-four hours after birth. Re-examination of the mother's blood showed her to be type O, Rh negative. The baby's blood was type O, Rh positive, with a typical picture of erythroblastosis and a positive Coom's test. The lowest count on the baby was hemoglobin 10 Gm., red blood cells 2,200,000, 2 normoblasts. Four transfusions of 60, 70, 100, and 50 cc. each were given. After the third transfusion the jaundice disappeared. The child was discharged on the eleventh day of life with hemoglobin 14.9 Gm., red blood cells, 4,680,000, white blood cells 11,350. The child was admitted to the pediatric ward at one month of age with hemoglobin 8.7 Gm., red blood cells, 2,800,000 and white blood cells 4,000. One transfusion was given and the child was discharged in five days with hemoglobin 11.2 Gm., red blood cells 3,500,000, and white blood cells 7,500.

CASE VIII. J. C., 22-year-old gravida II, para I (full term stillborn breech). Patient was originally reported as Rh positive then retyped and found Rh negative in the last month of gestation. Antibodies reported on September 6 were: glutinins, Rh1 1:2 Rh2 1:2. On September 15 she delivered a seven-pound-seven-ounce female. The blood findings on the child were as follows: hemoglobin 15 Gm., red blood cells 4,290,000, white blood cells 20,000, normoblasts 20, type B, Rh positive, positive Coom's test. The child became jaundiced sixteen hours after birth. A transfusion of 75 cc. of Rh negative blood was given on the day of birth. On September 17 the hemoglobin was 15.3 Gm., red blood cells, 4,330,000, white blood cells 13,150 with four normoblasts. A transfusion of 70 cc. of Rh negative blood was given. The child was discharged with hemoglobin 16.6 Gm., red blood cells 4,630,000, and white blood cells 6,200.

CASE IX. V. C., 34-year-old, type B, Rh negative, gravida VII, para I (first three pregnancies terminated in stillbirths at twenty-two to forty weeks, and there were two miscarriages). She had repeated toxemias with each pregnancy. The sixth pregnancy was terminated by cesarean section at twenty-two weeks, because of placenta abruptio. The present pregnancy was terminated by cesarean section at thirty-seven weeks, because of rising titer of blocking antibodies. An eight-pound baby in good condition was delivered. Immediate blood count revealed hemoglobin 15.6 Gm., red blood cells 4,070,000. A transfusion of 55 cc. of type O, Rh negative blood was given the first day. No further transfusions were indicated. The child was discharged with hemoglobin 18.6 Gm., red blood cells 5,340,000, white blood cells 11,350; red cells normal.

CASE X. H. C., 35-year-old, type O, Rh positive, gravida II, para I (full term, mentally deficient). The patient delivered a full term child in good condition. Nine hours after delivery the baby became jaundiced. Blood studies revealed it to be type A, Rh positive, hemoglobin 16.5 Gm., red blood cells 2,440,000, normoblasts 28; with vacuolation and destruction, anisocytosis and many macrocytes. Immediate transfusion with 70 cc. of type A, Rh negative blood was given without reaction. The next day the skin was bronze and the spleen enlarged. A second transfusion of 70 cc. of blood was given. Seven hours later the child developed convulsions and four hours later died from pulmonary edema. The postmortem examination revealed deep icterus: liver and spleen enlarged with collections of erythroblasts in both organs. Final diagnosis was erythroblastosis due to the ABO mechanism.

CASE XI. A. H., 35-vear-old, type O, Rh positive, gravida VI, para IV (full term normal deliveries, but with toxemia in each pregnancy. Fourth pregnancy was a miscarriage at two months). Labor was induced at forty-three weeks and an apparently normal healthy seven-pound three-ounce baby was delivered. The placenta was fibrotic and stained green. Forty-eight hours after birth, jaundice and cyanosis appeared. There was also dullness on percussion of right upper lobe of the lung. Blood count revealed hemoglobin 23 Gm., red blood cells 5,200,000, white blood cells 22,500; 56 nucleated red cells. A small blood transfusion was attempted, but only 35 cc. were given because of circulatory collapse. The baby failed rapidly and died in eight hours. The diagnosis was erythroblastosis due to the ABO mechanism.

## Conclusions

1. In a survey of 1,142 deliveries at the New York Infirmary during 1949, the incidence of Rh negative women was found to be 4.2 percent. Eleven patients delivered babies with erythroblastosis, 9 caused by sensitization to the Rh factor, and 2 caused by sensitization to the ABO factor.

2. Warning must be heeded in regard to the method of determining the Rh factor, for false positive reports are not infrequent.

3. Induction after the thirty-sixth week of pregnancy should be attempted in order to increase the salvage of babies of Rh negative women, for it has been shown that fetal death often occurs at the very end of pregnancy and only minimal changes are found at postmortem examination.

4. Vigilance must not be relaxed after delivery of an Rh negative woman, even though the infant is in excellent condition. There must be frequent checking clinically and by laboratory testing during the first week of life. Follow-up after discharge should be weekly, because of the possibility that anemia requiring transfusion may develop at one month.

5. Treatment at the New York Infirmary consists of multiple, small transfusions begun at the first signs of erythroblastosis, i.e., jaundice, pallor, or twitching accompanied by fall in hemoglobin or rise in nucleated red blood cells.

# The Adolescent Clinic

**Hilda C. Fliegel, M.D. and Nina Lief, M.D.**

ADOLESCENCE is a normal physiologic phase in the development of the individual. It is characterized by somatic and psychic changes which may appear together or may maturate at different times. The somatic changes are obvious because of the general growth and change in body proportions with specific emphasis on the sex organs. The psychologic changes should represent the gradual assumption of responsibility, the channeling of the emotions, and the institution of reason. Variations in the rate of development of one or both phases will produce problems of adjustment and at times unnecessary anxiety.

Cognizant of the fact that the adolescent is too old to be treated as a child, and too young to be admitted to the adult clinic, we established the adolescent clinic at the New York Infirmary in 1940. Since then, we have added the sections of adolescent gynecology and guidance. In this way, we have a group of girls of similar ages, with similar problems, at approximately similar rates of development, discussing with each other their problems at their own level. This is important, as it keeps the girl from feeling that she is "different": segregated from the adults, she is prevented from being adversely prejudiced against adult life.

The girls are generally brought to the clinic by their mothers. A detailed history is taken and a detailed examination of the completely disrobed girl is done. Both the mother and the patient are encouraged to state and discuss the reason for coming to the clinic. In this way, the general background of the patient is obtained. From here on the disposition of the case varies.

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Some of our patients are mentally retarded. Maturation has made the defect more noticeable. They come because of failure to adjust to the demands of the school and home. We have had cases of specific reading difficulties misdiagnosed as mental retardation. The first step in therapy is to determine the girl's capacity and then any special abilities she may have. Deep psychotherapy is not used in this clinic; we have utilized a combination of techniques. Interviews allow the patients to bring to the surface their anxieties and feelings of guilt. Ample time is permitted for the airing of difficulties. Some cases need actual psychiatric care for the parent, the patient, or the siblings.

The greater number of complaints is based on the conflict between the rigid standards of the older generation and the more liberal ideas of the younger. The parent is helped to understand what may be expected of the girl, how much must be done for her, and how much she must be allowed to accomplish for herself. A realistic appreciation of her limitations and the importance of the maximum amount of encouragement are emphasized. Positive reassurance to the mother and the girl is at all times stressed. The causes lurking behind the presenting difficulty are too numerous to be listed in detail here, but a few must be mentioned, such as crowding, lack of privacy, and lack of provision for social outlets. School visits are made to develop better understanding there. Social outlets are sought, such as neighborhood clubs and church groups.

Most adolescents are confused, and are groping for their place in society. The need to belong, to be accepted by their peers, is of primary importance. Accompanying this is the need to be treated as "grown up" by their parents, to be loved and trusted, and to be allowed increasing independence. Unreasonable insistence upon a particular way of acting, dressing, or even perfection, will cause resentment in some girls, whereas others may slip easily into the plan set for them, but lose their initiative and their ability to make their own decisions.

The gynecologic complaints represent a very real threat to the adolescent. Between the taboos and the shreds of conversation picked up from the adults, these girls approach the examination with terror.

However, each and every step is explained not only to the girl but also to the mother, and it is truly amazing how cooperative they will be. Physical deflections (rather than defection) are fairly common. Most complaints are those of menstrual dyscrasias: amenorrhea, hypomenorrhea, polymenorrhea, and menorrhagia are presented.

The breasts are either too small or much too large; there are discrepancies in the size of each breast; there are noticeable differences in the relationship between the size of the nipple to the size of the breast tissue. Hirsutism is distressing. Obesity is common in our clinic and rarely of endocrine origin. These complaints are explained and except in the cases of obesity (which are referred to guidance) the explanations are accepted. However, in the cases of menstrual dyscrasias, there is a great deal of emotional stress associated. The reassurance of both the mother and the girl is generally accompanied by visible signs of relaxation. It is interesting to note here that, though the complaint of dysmenorrhea is frequent, it is not associated with the anxiety states that accompany the complaint of amenorrhea or polymenorrhea. This may be because the mother has accepted it. Although the menstrual complaints may seem of a minor nature, they assume greater significance when one considers the conclusions of Day and Smith,[1] that women with menstrual dysfunctions have a greater incidence of infertility and pregnancy complications. The gynecologic findings in this clinic have been published,[2] and will not be detailed here. However, the gratification experienced by these girls and the family on the establishment of normal cycles is immeasurable.

We believe the adolescent clinic at the New York Infirmary to be unique. The purpose is to help these young girls both mentally and physically, to understand their problems, and to assist them to make their adjustments so that they may live healthy and well balanced adult lives.

SUMMARY

A special clinic for adolescent girls, established at the New York Infirmary in 1940, is described. The reasons for such a clinic and the techniques employed in examination and treatment are discussed.

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**ELSA BARTHEL, M.D.**

**Guest Editor**

OUR THANKS go to Dr. Barthel who, as Guest Editor, assembled the scientific articles and case reports in this, the New York Infirmary number of the JOURNAL. Dr. Barthel will be remembered as the able Guest Editor of the previous New York Infirmary number published in June 1949. She is Director of the Department of Dermatology and Syphilology at the Infirmary and Attending Physician of Dermatology and Syphilology at the Skin and Cancer Unit of the New York University.

# Perforating Injury of the Eye

## IMPLANTATION OF CILIA IN IRIS FOLLOWED BY FORMATION OF PEARL CYST

Olga Sitchevska, M.D.

A CASE of formation of a "pearl" cyst of the iris following an injury of the eye is reported. Pearl cysts are rare; they are characterized by their firm consistency, opaqueness and pearly color or luster. The shape is round or ovoid. The etiologic factor for the cyst formation is either a perforating injury or an operation on the eye, when epithelial particles are accidentally implanted into the interior of the eye. The cyst may develop in a few months or a few years after the injury. If left alone, it progresses in size, fills the anterior chamber, and usually leads to intractable glaucoma, with blindness the ultimate result.

### CASE REPORT

A negro girl, age 19, while at work sustained an injury to the left eye by a piece of metal wire. When seen half an hour after the injury, she had marked photophobia with ciliary injection of the left eye, and there was a gaping wound of the cornea at the 12 o'clock position, 4 mm. below the limbus; the anterior chamber was filled with blood and the vision was reduced to hand movement. She was hospitalized at the New York Eye and Ear Infirmary. Three days later the blood had been absorbed, the corneal wound healed, the anterior chamber was reformed, but the aqueous was still somewhat cloudy. The slit lamp examination revealed the presence of two eyelashes which were embedded in the iris at the 7 o'clock position; their free ends were extended obliquely in the anterior chamber at about axis 70. The cilia were evidently cut off by the wire and carried into the anterior chamber when the cornea was perforated. The cilia near the iris were enveloped in a grayish exudate. A small opacity in the lens capsule was observed near the embedded cilia. Posterior synechia formed and the pupil was irregular at this site. The x-ray examination did not reveal the presence of an intraocular foreign body. The inflammation subsided and the vision improved to 20/50.

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Four weeks after the injury the patient complained of pain in the eye which was mildly congested. An operation for removal of the cilia was performed five weeks after the injury. A keratome incision was made at the 9 o'clock position; the incision was enlarged with scissors. One cilia was removed with ease. It was necessary to enter the anterior chamber a few times before the second eyelash could be grasped with the forceps. A small iridectomy was performed in order to prevent prolapse of the iris. The eye became quiet in a few days. The vision was still 20/50. There was an opacity of the cornea at the site of the injury and an opacity of the lens capsule which accounted for the diminished vision. The patient had resumed work and everybody concerned was happy about the successful outcome of the injured eye with the removal of the cilia.

The postoperative follow-up for five months disclosed no change in the condition of the eye. Although the patient had been requested to visit the office once a month, she did not appear until three months later, then complaining of slight photophobia. The eye was quiet, there was no flare in the aqueous and the intraocular tension was normal. However, the slit lamp examination revealed the presence of a small dark bulge of the iris at the 5 to 6 o'clock position at the angle of the anterior chamber (note that this position was at a different site from the injury and from the location of the cilia), its size being that of a pin head. Within the next five months this elevated area gradually increased to the size of a small pea, measuring 3 x 5 mm. It was ovoid in shape; the iris was stretched and atrophic over the cyst, which was opaque. Its center was of whitish muddy color. Anteriorly the tumor was in apposition to the posterior surface of the cornea. Some pain in the eye was experienced occasionally by the patient and mild ciliary injection was present. The problem arose whether to remove the cyst, or to leave it alone. A second operation on an eye which had had a penetrating injury 17 months previously and operation for removal of the cilia a year previously presented a serious threat of inducing a sympathetic ophthalmia. However, since the cyst was growing and since it would eventually lead to the loss of the eye because of secondary glaucoma, it was felt that operative interference was indicated. The patient was re-admitted to the New York Eye and Ear Infirmary. In April 1949, just one year after the removal of the cilia, an operation for the removal of the cyst was performed. It was successfully removed by an iridectomy through a keratome incision at the lower limbus at the 6 o'clock position. While pulling out the iris, the cyst was ruptured and it was removed in fragments. The

postoperative course was uneventful. The eye has been quiet to date (two years after the operation). The vision is still 20/50, i.e., the same as it was before removal of the cyst.

### Summary

This case is reported because of the unusual feature of the development of a pearl cyst of the iris despite previous removal of the cilia. The chief danger in leaving the cilia in the eyeball after an injury is the formation of a cyst of the iris, with resulting glaucoma and loss of the eyeball.

Since the cyst developed at a different site from the location of the cilia, the assumption can be made that some epidermoid particles from the root sheath of an eyelash were carried into the anterior chamber simultaneously with the eyelashes during the initial perforating injury of the eye. These epithelial cells lodged at the angle of the anterior chamber began to proliferate, and led to the formation of the cyst.

The second interesting feature of this case is that despite a severe perforating injury of the eye, the removal of the cilia five weeks later, and the removal of the cyst a year later, there was no further deterioration of the eye.

# Meningococcemia with Meningitis

## REPORT OF CASE IN A TEN-DAY-OLD INFANT

**Beatrice S. Sloan, M.D., and Lucille Ross, M.D.**

ALTHOUGH meningococcal infections are common, especially in children under one year of age, reports of disease caused by this organism during the first month of life have been rare.[1,2,3,4,5,6,7] A case of meningococcemia with meningitis in a ten-day-old infant has been observed on the Pediatric Service of the New York Infirmary. It seems worthwhile to record the case because of the early age of the patient and of certain interesting features which developed.

### Case Report

P. V. was admitted to the New York Infirmary at the age of eight days, because he had had seven diarrheal stools on the day before admission, and three on the previous day. He was a full term baby, delivered by low forceps, weighing 6 pounds 12 ounces at birth. The baby was circumcised on the fifth day of life, and was discharged from the hospital the following day, weighing 6 pounds 1½ ounces.

Physical examination on admission showed a slightly dehydrated baby boy in fair general condition, weighing 5 pounds 2 ounces. There were no localizing signs of disease. The maximum temperature on the day of admission was 102.2F. Diarrhea was mild. The baby was fed tea and barley water, and given M/6 sodium lactate subcutaneously. Procaine penicillin, 200,000 units, was administered on the day of admission and on the following day. The baby's condition remained about the same on the second day of hospitalization, except for the absence of diarrhea, and the appearance of cyanosis when he cried. Blood examination showed 16 Gm. hemoglobin; 5,150,000 erythrocytes, and 17,800 leucocytes, of which 10 percent were adult polymorphonuclear cells, 31 percent immature polymorphonuclear cells, 56 percent lymphocytes, and 3 percent monocytes. Continuous oxygen therapy was instituted, and continued for eight days. A dilute formula of a proprietary milk preparation was given. On the following day, the tenth day of life, the baby became critically ill. He developed diarrhea again; his respirations were slow and somewhat labored, and he lost his ability to suck. He became stiff and had occasional tremors and twitchings of the arms, and there was right facial paresis. The anterior fontanel was slightly tense; the neck was partially resistant to flexion, and there was mild opisthotonus. There was no rash. Despite repeated attempts, only two drops of bloody spinal fluid were obtained. Bilateral subdural taps showed no accumulation of fluid. A blood culture taken on this day was positive for meningococci. The blood carbon dioxide-combining power was 22 volumes percent.

The following therapeutic regimen was instituted: 1 grain of sodium sulfadiazine per pound of body weight was given daily in four divided doses. It was administered subcutaneously for five days and orally on the sixth day. The use of procaine penicillin was discontinued, and aqueous penicillin substituted in intramuscular doses of 50,000 units every three hours for three days, then every eight hours for two days, and every twelve hours for two days. The baby was also given 0.1 Gm. of streptomycin every six hours for 36 hours. He was maintained on continuous intravenous fluids (5 percent glucose in water, 5 percent glucose in saline, M/6 sodium lactate, and

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amigen, with added vitamin B complex and vitamin C) through scalp veins for three days. On the fourth day of hospitalization the baby was worse. The rigidity had increased, and breathing was more labored. The abdomen was somewhat distended. Opisthotonus was present, but the other signs of meningeal irritation had subsided.

Slight improvement in the general condition of the baby, in his color, and in his respiration was noted on the following day. He was able to take a small amount (¼ ounce) of oral feeding by dropper. Marked edema of the soft tissues above the clavicle was apparent on the sixth day of hospitalization. The swelling was localized despite the fact that the baby's position in the incubator had been changed frequently. It was thought that the site of the edema fluid might be attributable to venous obstruction complicating meningeal infection. Intravenous administration of fluids was discontinued, and the edema fluid was gradually absorbed during the next two days. Despite the presence of the fluid, the baby was more alert and reactive to stimuli. He was also less rigid and became afebrile. The temperature was normal thereafter and blood culture was negative.

The baby's ability to take oral feedings improved progressively. Eight days after admission he could be fed by bottle. His weight gain thereafter was adequate. His back remained arched until the thirteenth day of hospitalization. His hearing was intact. On the twenty-second day after admission, the baby was discharged in good general condition.

P. V. was readmitted to the hospital when he was two and one-half months old. During the preceding two weeks he had had episodes of shrieking which were recurring with increasing frequency. Evidence of hydrocephalus was noted; the circumference of the head had increased 8 cm. in about seven weeks. Spinal fluid, blood culture and subdural tap were negative. He was transferred to the Neurological Institute, Columbia-Presbyterian Medical Center, where ventriculograms were taken and a dye test performed. It was found that he had a very large left ventricle which extended across the midline to the right. The cerebral cortex on the left was less than 1 cm. thick. The findings were interpreted "as evidence of obstructive hydrocephalus with probably a defect in the septum pellucidum and absence of the corpus callosum and left cerebral agenesis."

(We are indebted to Dr. Kate Constable and Dr. John Taveras for this information and for the films presented herewith.)

## Discussion

The question of the source of infection is an important practical and epidemiologic one in this situation. The new-born unit was eliminated as the

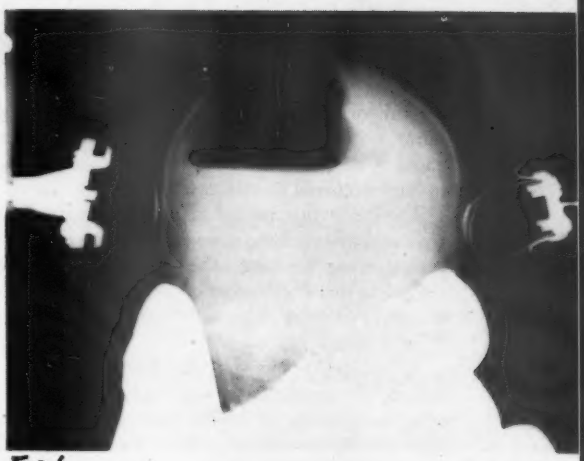

Fig. 1

Fig. 2

Fig. 3

**Fig. 1.** Antero-posterior view showing air in left lateral ventricle.

**Fig. 2.** Lateral view showing extremely thin rim of left cerebral cortex.

**Fig. 3.** Right lateral decubitus view showing air in left lateral ventricle.

site of infection, since no other case of meningococcal infection developed in the group of infants housed there simultaneously with the patient. The father was a dock worker in an area from which sporadic cases of meningococcus meningitis had been reported concurrently with the baby's illness. Since meningococcic infections are often propagated by carriers, that manner of contagion is likely to have occurred in this case.

The incubation period of meningococcus meningitis varies from three to seven days with exceptional cases varying from one to ten days.[8] The clinical inference is that the incubation period for this patient may have been as short as 24 hours, and no longer than 72 hours.

Although no positive spinal fluid culture was obtained, the examination was performed on an inadequate amount of bloody spinal fluid. There is little question, however, about the presence of a meningeal infection which dominated the clinical picture in this case.

The clinical features of meningococcus meningitis may be somewhat different in very young infants from those in older babies and children. Wright has drawn attention to the rarity of skin lesions in the disease occurring in the very young.[9] The disease may be characterized at its inception by diarrhea,[8] which was the chief complaint at the beginning of this baby's illness.

The response of this patient's infection to therapy with sulfadiazine agrees with the experiences of others.[2,3,10,11,12] It is interesting that a positive blood culture was obtained after the infant had had depot penicillin for two days. This suggests either that sulfadiazine was primarily the effective agent, or that the level of penicillin required to combat this infection is higher than that which is obtained with procaine penicillin.

P.V. was discharged from the hospital on the twenty-eighth day of life as a healthy infant. He had gained weight and was continuing to do so; there was a normal waking activity and undisturbed sleep pattern. All abnormal neurologic signs had disappeared. The hydrocephalus apparent at the second hospitalization was generally assumed to be secondary to obstruction which had been a sequela of the meningitis, probably as a result of basilar arachnoiditis. The observations during ventriculography were, therefore, surprising. Evidently the infant had a congenital intracranial anomaly which was responsible for the hydrocephalus, and the illness in his second week of life was not the principal cause of his hydrocephalus, although it may have been contributory. The presence of the anomaly led to the conclusion that surgery, which had been contemplated to relieve the hydrocephalus, was contraindicated. Nevertheless, it should be emphasized that periodic examinations of children recovering from meningitis are strongly indicated to enable the physician to determine whether hydrocephalus which might be treated by a surgical procedure is developing.

## Summary

A case of meningococcemia with meningitis occurring in a ten-day-old infant who survived has been described. The infant subsequently developed hydrocephalus, which was felt to be due to a congenital anomaly of the central nervous system, rather than to be a sequela of the meningitis.

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# Rickettsialpox

## REPORT OF A CASE

Ann Knopf, M.D.

RICKETTSIALPOX, an acute exanthem caused by Rickettsia akari, is spread by the bite or excrements of a mite, Allodermanyssus sanguineus, a parasite of the mouse. The disease was first studied in 1946, during an epidemic in the Borough of Queens, New York. At that time the causative organism was discovered and the epidemiology determined. The disease runs a short characteristic course. The prognosis is good. No complications have been observed. Antibiotics do not appear to have any effect. The clinical diagnosis is based on (1) abrupt onset; (2) febrile course associated with a maculopapulovesicular rash occurring seven days after the appearance of a primary papulovesicular lesion which forms an eschar; and (3) good general condition despite marked subjective malaise.

The serologic diagnosis is based on complement fixation tests performed during the course of the disease and repeated several weeks later. A rising titer confirms the clinical diagnosis.

Rocky Mountain spotted fever also shows a positive complement fixation reaction with Rickettsia akari antigen, but aside from the clinical differences, it presents a positive Weil-Felix reaction as well, while rickettsialpox does not.

The case here reported resembles those described in the literature, except for the unusual onset.

The patient, a 34-year-old white woman, American born of Ukranian parentage, was admitted to the New York Infirmary on August 1, 1950, with a temperature of 104 F., general malaise, and pain and swelling on the left side of the neck. The illness had begun five days earlier, on July 27, 1950, with an infected scratch lesion of the left lateral cervical region which had developed three days after the patient had spent a day at the seashore where she was bitten by an insect. An itching papule had resulted, which she had scratched vigorously. The papule became painful and swollen, and on July 30, the patient presented herself at the Emergency Room of the Infirmary. At that time the swelling was noted, as well as tender submandibular lymph nodes on the same side of the neck. A mixture of soluble and repository penicillin, 400,000 units, was given intramuscularly. On the following day, July 31, the temperature rose to 101 F., and penicillin was again given. This was repeated on the morning of the next day. On the afternoon of the next day, August 1, sudden chills and headache developed, the temperature rose further, and the patient was admitted to the Surgical Service of the Infirmary.

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The past history showed the usual childhood diseases; two pregnancies, in 1937 and 1941; and pleurisy with a small effusion in 1939. At that time cultures were negative for tuberculosis and a chest x-ray was negative three months after the illness. The husband died of tuberculosis in 1943, and the patient and the children have been periodically x-rayed since then. No pulmonary lesions were detected.

Physical examination on admission showed a well developed, acutely ill woman, whose main complaints were severe headache and generalized aches and pains. The temperature was 104 F.; the pulse was 106, and during the subsequent febrile course fluctuated between 88 and 100. The only physical finding on admission was the lesion in the neck. In the left posterolateral cervical region there was a reddened indurated moderately tender swelling involving the skin and subcutaneous tissue; this was 2 to 3 cm. in diameter and was topped by a yellow crust in its center. A second red and tender area was seen 4 cm. anterior to the first. The submaxillary lymph nodes were enlarged and tender on the left. The patient was given soluble penicillin, 300,000 units every three hours, and full doses of triple sulfonamide compound. The laboratory reported a white blood cell count of 3,850, with 38 mature and 34 immature granulocytes, 27 lymphocytes, 1 monocyte. The urine was negative. Blood culture was also reported later as negative.

As soon as the total white blood cell count was known, the sulfonamides were discontinued. On the following day, August 2, the temperature was 103 F., the pulse was 88. The neck infection appeared to be improved. The patient still complained of severe headaches and generalized soreness. A scanty papular rash was noted on the abdomen. This consisted of small scattered, faintly pink, barely elevated papules, mostly oval in shape, 3 to 5 mm. in diameter. Despite the patient's complaints her general condition was good. A medical consultation was requested, and as the consultant felt that the history and findings pointed to Rickettsial disease, the patient was transferred to the Medical Service.

Penicillin was continued and aureomycin, 250 mg. four times a day, was added. On August 3, the temperature dropped to 101 F. and the rash spread to the chest, upper arms, and thighs. Small central vesicles were noted on several of the abdominal papules. At this time a dark pigmented area, 1 cm. in diameter, was first noted on the abdomen, and on questioning, the patient stated that this had developed from a papule which had changed into a pustule followed by a crust. She was vague about the time of appearance but insisted that it had preceded the infection of the neck. On further questioning she stated that the house in which she lived was infested with mice. A check with the Department of Health

revealed that this house was in an area where rickettsialpox was known to be endemic.

On August 4, seven days after the onset of symptoms, the temperature was normal. Blood was taken for agglutination and complement fixation tests. Agglutination was negative for typhoid H, typhoid O, paratyphoid A and B, Brucella abortus, and Bacillus proteus OX 19 and OX 2. Complement fixation was negative for Rickettsia akari. The latter three tests were performed by the Bureau of Laboratories, Department of Health.

From August 4 to August 8, the day of discharge, the patient's temperature was normal and her general condition was good. By August 6, the rash had practically disappeared, and no further vesicles were noted. The white blood cell count repeated on August 4 was 4,100, with 40 adult and 10 immature polynuclears and 50 lymphocytes. A chest plate, taken because of her personal history and tuberculosis contact was negative.

On August 18, ten days after discharge, a second complement fixation test for Rickettsia akari, made by the Bureau of Laboratories, Department of Health, was positive, 1 to 64. In conjunction with the negative Weil-Felix reaction, this confirmed the clinical diagnosis of rickettsialpox. It was learned later that measures had been taken to rid the house of mice.

This case was at first baffling because of the apparently unrelated infection of the neck which was the patient's original complaint. The increase in severity of systemic symptoms, despite the local response to chemotherapy, and the appearance of the rash led to the successful search for the etiologic agent.

### Summary

A case of serologically confirmed rickettsialpox is reported, in which the diagnosis was temporarily masked by an infected scratch lesion of the neck.

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# Cyst of the Pericardium

**Frances H. Bogatko, M.D., F.A.C.S.**

PRIMARY TUMORS of the pericardium are rare and only 37 cases of cysts of the pericardium have been reported. Some early cases were discovered as incidental findings at postmortem examination, and in recent cases the exact diagnosis has been made at operation. The cysts are sometimes found accidentally during routine roentgenograms for other chest conditions, but they are often overlooked even in chest roentgenograms. None have been diagnosed preoperatively because no symptom complex can be ascribed to the presence of these tumors. In no reported case was the lesion suspected as the result of a general physical examination.

These cysts are benign, unilocular, well circumscribed and easily shelled out, and their blood supply is derived from the pericardium. They must be differentiated from lymphangiomas which are multilocular, intimately adherent to surrounding structures, and derive their blood supply from several sources. Lambert states that they arise from the failure of one of the primitive pericardial lacunae to merge with the other; the lacuna persists and develops into a cavity forming a cyst. However, there are five or six other theories regarding their pathogenesis.

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### Case Report

J. T., a 50-year-old, white, unmarried woman, was admitted to the Surgical Service of the New York Infirmary on October 4, 1950, because of bleeding, itching hemorrhoids of four to five months' duration. The family and past history were non-contributory. She had had a supracervical hysterectomy for fibroids performed in 1944, but otherwise had always enjoyed good health. A review revealed no symptoms of disease of the gastro-intestinal, genito-urinary, central nervous, blood, or metabolic systems. The patient stated that she slept on two pillows, but had no ankle edema, exertional dyspnea, angina, or nocturnal dyspnea. There was no history of allergies, chills, night sweats, or weight loss. She had a chronic cough which she attributed to the fact that she was a heavy smoker.

Physical examination revealed an obese woman weighing 200 pounds, who showed no evidence of disease except three inflammed hemorrhoids. The lungs were clear; the heart was not enlarged; there was a normal sinus rhythm and no murmurs were heard. The blood pressure was 138/88; the pulse

rate, 78; the temperature, 98.8F. All blood and urinary findings were within normal limits. A proctoscopy and hemorrhoidectomy were done on October 2, under pentothal sodium anesthesia. Convalescence was uneventful, and the patient was discharged in good condition on October 10, her fifth post-operative day. Four days after discharge, she developed what she described as an aching pain in the left subcostal area. This interfered with her sleep and she consulted a local physician who treated her with diathermy, ointment, and pills. The pain decreased in severity but was still present when she had a post-operative examination on November 4. She gave no history of fever, productive cough, chills, night sweats, or precordial pain, but because of the possibility of embolism or pneumonia she was immediately referred to fluoroscopy. Upon fluoroscopic examination by Dr. Leonora Andersen there was seen in the right chest a round shadow which was superior to the diaphragm and well anterior to it. She was readmitted to the New York Infirmary on November 8, 1950. Physical examination of the chest was essentially negative.

A roentgenogram of the chest was reported as follows: "Postero-anterior, lateral, and oblique films of the chest plus fluoroscopy disclose a spherical mass about 6 to 7 cm. in diameter and of homogeneous density, located in the mesial portion of the anterior right chest. The mass has smooth borders and there is no evidence of any other pathological change or abnormality within the lungs or mediastinum. The right diaphragm moves downward freely below the mass without producing any pain or discomfort and there is no torsion on the mass as the diaphragm moves. This mass is probably in the right middle lobe. *Opinion:* Primary carcinoma."

Blood and urinary studies were normal and an electrocardiogram showed no evidence of myocardial disease.

A thoracic surgeon was consulted and the patient was transferred to Memorial Hospital, New York, on November 14, 1950. Bronchoscopy on November 16, 1950, revealed some narrowing and distortion of the right middle lobe bronchus but no evidence of secretion or inflammation. Papanicolaou smears of the sputum were taken and reported as Class II with marked histiocytic activity and rare inconclusive atypical cells. Bronchial washings were sent to the Papanicolaou Laboratory and reported as follows: "No neoplastic cells found." Films of the chest and 24-hour film after barium swallowing showed that "the colon is in its usual position and there is no confirmatory colon sign suggesting herniation through foramen of Morgagni. The absence of the sign, however, by no means excludes such a possibility. *Conclusions:* Mass, right side of thorax, as described. We do not know the nature of this mass. In spite of the absent colon sign, we think that herniation through the foramen of Morgagni is the most likely possibility."

After preoperative preparation, including ventilation and circulation studies, the patient was operated upon on November 16, 1950, at Memorial Hospital, by Dr. John Pool. Right exploratory thoracotomy revealed the presence of a pericardial cyst containing 125 cc. of a slightly yellowish fluid. The cyst measured 7.5 by 4.5 by 1 cm. It was composed of fat and a serous-like glistening grayish membrane. The convalescence was satisfactory and the patient was discharged in good condition on November 27, the eleventh postoperative day.

## Summary

Exploratory thoracotomy was done on this patient, an obese woman, the preoperative diagnosis being intra-thoracic tumor. A pericardial cyst, measuring 7.5 by 4.5 by 1 cm., was found. The cyst was composed of fat and a serous-like glistening greyish membrane and contained yellowish fluid. Convalescence was uneventful.


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# Bromide Poisoning

## REPORT OF TWO CASES

**Leonora Andersen, M.D., and Sonia Kraff, M.D.**

Psychosis resulting from bromide poisoning is more frequent than is commonly realized. The first case report of bromide intoxication was made by Huette in 1850, yet, although the dangers have since been frequently stressed, the drug is still prescribed carelessly. Bromide poisoning may be the underlying factor in some of the very cases for which it is commonly used. Next to alcohol, bromide is the most frequent cause of psychosis. The use of small doses over a long period of time, or of large doses over a short period, may give rise to symptoms. These appear more rapidly in some persons than in others and may appear suddenly after the patient has been taking the drug over a long period of time. Elderly or arteriosclerotic patients have a poor tolerance and may develop severe symptoms, although the blood content may be low.

Bromide is excreted slowly, and psychosis may develop two or three weeks after the taking of as little as 3 Gm. a day. It has a great tendency to accumulate in the blood plasma and in other extracellular fluids where the bromide ion replaces the chloride ion.

The actual level of bromide in the blood is often no real index of the degree of toxicity, because after long continued use the blood levels may be low, but saturation of the tissues in the central nervous system may be such as to cause irreparable damage.

Bromide has been used as a central nervous system sedative since 1864. It can be purchased without a prescription, or, having been procured initially on a physician's order, the prescription may be refilled for years. The drug is also sold without regulation in the form of proprietary preparations and headache remedies, containing from 0.6 Gm. to 1.5 Gm. per 4 cc.

### Diagnosis

The condition may be manifested in the following ways: *Skin:* Discrete acneform, pustular rash on face, neck, chest, and back. Skin manifestations are not frequently seen, contrary to belief. It is interesting to note that in neither of our two cases were skin lesions evident. It is thought by many that the acneform lesions attributed to bromides are due to an idiosyncrasy to the drug rather than to toxicity.

*Systemic Effects:* Anorexia, cachexia, and nutritional defects such as vitamin deficiency and gastrointestinal disturbances of bizarre types.

*Depressive Effects:* Progressive mental deterioration. The patient is dull, stupid, indifferent, expressionless, pale; the eyes are heavy; mental processes and movements are sluggish; speech is slow; memory is defective; and there is a general lowering of vitality and vigor.

*Psychotic Effects:* Restlessness, apprehension, hallucinations, delusions, delirium with disorientation and ideas of persecution. In serious cases the pupils are irregular and sluggish; the speech is thick and the gait unsteady; there are tremors of tongue and fingers.

Bromide poisoning may be acute or chronic. The chronic form is the more important, because of its frequency and failure to recognize its existence. Because of this failure, bromide poisoning may go untreated for so long that irreparable damage of the central nervous system occurs. It is well known that many patients could have been spared long periods of chronic illness and even commitment to mental institutions had this diagnosis been considered at the onset.

### Psychoses

One percent of all admissions to mental hospitals is due to the excessive use of drugs, and, among these, bromides and barbiturates are most frequently responsible for the mental disturbance. Dr. Adolf Meyer reported that before the introduction of the Wassermann test, bromism was reported as general paralysis because of the neurologic signs of irregular pupils, sluggishness, tremors, unsteady gait, and thickness of speech.

Out of 49 cases admitted to a mental hospital, physicians were responsible for 20 cases of bromide poisoning. Out of 310 cases admitted in 1947, to the Psychiatric Service of Bellevue Hospital, New York, 84 were due to bromide alone or to bromide in combination with some other drug (Rickles).

The South Carolina State Hospital reports that 13 percent of admissions were due to bromide prescriptions, and that bromide was found to be the sole factor for the psychosis (Dax).

To emphasize the widespread sale of bromide, the following figures were reported, after routine

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blood determinations, on 1,500 patients in over two years (Dax and Rickles):

| Milligrams in blood | No. of patients |
|---|---|
| 25 or less | 994 |
| 25 to 49 | 329 |
| 50 to 100 | 118 |
| 100 to 125 | 23 |
| 125 to 150 | 12 |
| 150 to 175 | 11 |
| 175 to 200 | 5 |
| 200 to 225 | 1 |
| 225 to 250 | 2 |
| 250 to 275 | 3 |
| 275 to 300 | 2 |

Thus, 59 patients had levels of 125 or over. The rash was noted in only three patients.

In 36 cases reported by Campbell,[2] 20 of the patients were manic depressives and 4 were psychoneurotics, bromide poisoning being entirely responsible in each case. Because of legislative control of the sale of barbiturates, the sale of bromides, which has no restrictions, has increased.

The diagnosis is made by (1) the history of previous drugs taken; and (2) by the determination of the bromide level in the blood plasma.

The treatment consists of (1) discontinuance of the drug; (2) administration of sodium chloride, 1 Gm. four times a day, given orally or intravenously or by rectum, if necessary; and (3) administration of paraldehyde, if needed.

## Case Reports

CASE I. *Acute bromide poisoning.* The patient was a 61-year-old white female, who was admitted to the New York Infirmary in a state of confusion, with marked restlessness and delusions of persecution. She had been taking bromide 1 Gm. three times a day, on a doctor's prescription, for two weeks prior to admission. Blood examination done on the day of admission showed 225 mg. of bromide in blood plasma. The drug was immediately discontinued; the patient was given 1 Gm. of sodium chloride four times a day and was put on vitamins and a high caloric diet; and fluids were forced. She began to improve 10 days after admission. Bromide determinations were done weekly. On the regime outlined bromides in the blood plasma decreased. After a 10 weeks' stay in the hospital she was discharged completely cured with blood plasma bromide content of 14 mg.

CASE II. *Chronic Bromide Poisoning.* The second case is one of chronic bromide poisoning due to the taking of bromide in varying amounts daily over a period of many years. Because of sudden alarming visual symptoms a house call was made on October 5, 1950. The patient, a woman 43 years of age, was lying in bed in a semicomatose condition. Her present complaint was inability to focus; but because of increasing weakness and ataxia she had been unable to work for the past few months. She had eaten poorly because of persistent anorexia and nausea with occasional vomiting. For the past few days she had not had an adequate fluid intake, but she had continued to take her "medicine."

Physical examination revealed extreme dehydration and severe aphthous stomatitis. The pupils were widely dilated and did not react to light or accommodation. There was marked internal strabismus. Hyporeflexia of all four extremities was present, amounting in the legs to almost complete lack of response. Atonicity of all skeletal muscles was marked. The patient was confused and displayed no interest in her condition. She could not stand or walk alone.

Questioning revealed that she had been taking unknown amounts of bromide since January 1944. The patient was immediately referred to the hospital for treatment. For the next six days she was given fluids intravenously and her mental confusion gradually cleared.

The bromide level in this case was only 50 mg., but eight weeks later it was still 30 mg. The profound effects were undoubtedly due to constant use of the drug over so long a period of time. During her entire period of hospitalization (14 weeks) she was put on increasing amounts of supervised exercise and supplementary vitamins as well as salt. She is now at home and is having intensive psychotherapy. Although her family feels that she is in a better state of health than she has been for many years, the prognosis in her case is doubtful.

## Prevention

It is within the power of the medical and pharmaceutical professions to prevent bromide intoxication. It is particularly important at this time, when restriction of salt is so commonly ordered for various medical reasons, that the profession be aware of the added danger of bromide poisoning while chloride ion intake is reduced.

Proper legislation would be of great value in controlling the use of bromides, as it has been in controlling the sale of barbiturates.

Prescriptions given by a doctor should be marked "Do not refill."

Every effort should be made to make the entire medical profession more aware of the dangers of this drug and of the possibility of bromide poisoning in obscure cases of long standing anxiety, depression, and malnutrition.

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# EDITORIAL

## THE NEW YORK INFIRMARY

THE TWO YEARS that have elapsed since the JOURNAL OF THE AMERICAN MEDICAL WOMEN'S ASSOCIATION last devoted a number to the work of the New York Infirmary have been perhaps the most exciting to the Infirmary family in all its history of ups and downs. The year 1950 was especially active.

First, as to service. In every department of the hospital the number of patients was increased. During that year, 38,702 days of hospital care were given to 4,945 in-patients, of whom 1,327 were infants, as compared with a total of 25,777 days in 1949. There were 1,308 live births with no maternal deaths. The Dispensary clinics cared for 4,733 out-patients, who made 27,138 visits. The Strang Tumor and Cancer Prevention Clinics saw 3,259 patients, who made 7,753 visits.

Next, as to finances. The average cost per hospital day was $17.36; the average cost per dispensary visit was $4.50. Because of this rise in costs during 1950, the operating deficit for the year amounted to $242,422; but all this as well as the expenses of the Finance and Treasurer's Office were met through the devoted and continuous efforts of the Trustees and the many volunteer committees working with them. In fact, these combined efforts during the past few years have not only met the annual deficits but have provided a small surplus for the hospital.

For the third successive year the Infirmary, on January 26, 1951, celebrated the graduation of Elizabeth Blackwell in 1849, by awarding citations to five women physicians who have made outstanding contributions to medicine. Fifteen distinguished medical women have been so honored since the awards were established three years ago by the Board of Trustees of the Infirmary. Their names and the individual citations have been published in the JOURNAL (see March, 1949, p. 128, March, 1950, p. 122, and April, 1951, p. 149.) A special citation was awarded to Mrs. Ishbel Ross for her biography of Elizabeth Blackwell, "Child of Destiny."

To these and other normal activities there has been added the intensive drive for funds for the new building. One valuable product of the drive has been the unification of all Infirmary groups into a resourceful working team. From the Trustees and the doctors on the staff, who of course shouldered the main responsibility, every one throughout the organization has helped. The Auxiliary undertook to raise money for one floor, and already $273,792.78 is in hand. The Guild offered to provide for a Surgical Unit, and so far has raised $37,343.06. The volunteers have raised $15,458.62 for a nurses' station on the sixth floor and an eight-bed nursery. The administration staff, doctors, nurses, social service staff, and volunteers, all working together conducted a successful two day Street Bazaar, and in connection with it gave a supper in Olmsted Hall at St. George's Church Memorial House, all netting $11,645.06. The Infirmary administration staff and employees raised $9,249.63. The Town and Village Committee from Stuyvesant Town and Peter Cooper Village made a door to door solicitation, enlisting the interest and cooperation of our new neighbors, which may pay large dividends in later years. By May 1, 1951, the funds in hand for the new building amounted to $3,239,461.36.

Preliminary plans have been developed by the architects in close collaboration with the doctors, floor by floor, department by department. The plans call for an eleven story building to be erected on the present site of the Infirmary, occupying the full block front from Fifteenth to Sixteenth Streets facing Stuyvesant Square, and to contain 235 beds. The material will be reenforced concrete. The front will have supporting columns forming pilasters the full height of the building between warm gray brick panels and heat deflecting window glass of a slightly blue color. There will be fifteen-foot garden plots on three sides, a 60 foot driveway, and a parking space at the rear.

Originally the cost of the new building, equipped and furnished, was set at $4,200,000. Now we fear that it will be far greater because of the rising prices of materials and labor; but with the help of every friend we have and of many new ones we hope to gain, we look forward with faith to reporting by another year that the new building is rising in glistening newness in our lovely old neighborhood.

NARCISSA VANDERLIP
*President*, Board of Trustees
New York Infirmary

Journal of the
AMERICAN MEDICAL WOMEN'S ASSOCIATION

## ASSOCIATION NEWS AND ANNOUNCEMENTS

### PRESIDENT'S MESSAGE

As I write this, my last message as President, to the members of the American Medical Women's Association, three questions which I wish to answer come to mind.

1. *What has been accomplished in the Association during the past year?*

This year about 300 new members have been received into the American Medical Women's Association. Three new branches have been organized: Long Beach, California; Seattle, Washington; and Boston, Massachusetts. Printed charters and proposed constitutions have been sent to these branches. Junior branches are being formed in several medical colleges.

Because of the increase in dues and the curtailment of all but the most necessary expenditures, the balance in our General Fund is better than ever before. This will enable the Finance Committee to increase the budget for promotion work and for expansion of our activities and eventually to establish a general headquarters.

The majority of our committees have been active, and the scope of their work has increased. Reorganization within committees and endless detailed tasks have been accomplished. The Publications Committee has opened a new office in the Gramercy Park Hotel, New York.

The JOURNAL and its Editor, Dr. Ada Chree Reid, are to be congratulated upon the excellent numbers published during the past year. Many favorable comments have been received from numerous individuals, institutions, and organizations with requests for copies of special numbers.

In September, the Sixth Congress of the Medical Women's International Association met in Philadelphia. This meeting was in itself a noteworthy achievement which strengthened our international relationship.

2. *Does our Association justify its own existence?*

This is a question which your President can readily answer in the affirmative. The hundreds of telephone calls of inquiry and the numerous letters from women interested in the study of medicine, in fellowships, and in graduate work show that women as a whole seek the advice of a woman's organization. Recognition of our Association by other large organizations shows that, as a group, our opinion is solicited and expected. The Army and Navy expect us to represent women physicians in the United States, and have conferred with us regarding the enlistment of women physicians. As a national Association of medical women, we have long been recognized in a nation-wide community, and our influence is vastly more important than many individual members realize.

3. *What should be our objectives for the future?*

Our chief objective should be to expand and grow. Our primary need is a general headquarters office which should be an information center for women in the field of medicine. Instead of emphasizing petty intrinsic problems, we should broaden our horizon and seek greater perspectives. I question our timidity in being opposed to lobbying. In the present world situation of unrest and with relations at home and abroad in a chaotic state, women's organizations are regarded as powerful instruments for promoting international peace and unity. The medical women of this country represent an intelligent group whose primary interest is the welfare of humanity. The American Medical Women's Association should, therefore, take a firm stand in national and international affairs. We should have conviction and courage to face the issues before us. With integrity of spirit, as a unified group, may our Association assume its place in leadership for the rights which we cherish. As long as we exist, we must go forward, and I am confident that we will. My good wishes go to each one of you.

Elizabeth S. Waugh

## CONNIE M. GUION, M.D.

ALTHOUGH Connie Guion was born in Lincolnton, North Carolina, and attended school in Charlotte, her academic degrees were obtained at northern colleges; B.A. from Wellesley College; M.A. from Cornell University; M.D. from Cornell University Medical College.

Her long and important career in education began when she became an instructor in chemistry at Vassar College. Later she taught at Sweet Briar College, Virginia, where she was head of the department and Professor of Chemistry. After her graduation from Cornell University Medical College in 1917, she was appointed Assistant Attending Physician at Bellevue Hospital, Cornell Division, and Assistant Attending Physician at the New York Infirmary, and later became Director of the Medical Department. She became Chief of the Medical Clinic of Cornell University Medical College in 1929 and has continued to serve in this capacity to the present day. In 1929, also, Dr. Guion was appointed Assistant Professor of Medicine at Cornell University Medical College; in 1936, Associate Professor; and in 1946, Professor of Clinical Medicine. From 1932 to 1942, she was Assistant Attending Physician at the New York Hospital, and was made Associate Attending in 1942, and Attending Physician in 1943.

At the Centennial Celebration of Elizabeth Blackwell's graduation in medicine, in January 1949, the New York Infirmary made the first awards of Blackwell Citations to five outstanding women in different branches of medicine. One of the five was Dr. Guion, who was cited for her achievements in internal medicine. The citation read in part: "Combining to an unusual degree knowledge of medicine and sensitiveness to suffering, she has made rare contributions to both doctors and patients. As an outstanding teacher of clinical medicine, she has initiated many constructive improvements in the organization of teaching facilities, utilizing the human resources of wards and clinics to exert a lasting influence upon innumerable medical students."

In March 1950, Wellesley College bestowed on her the honorary degree of Doctor of Science as one "whose distinguished career as practitioner and teacher of medicine has strengthened the position of all women who seek to enter this field." Her most recent honor was the Award of the Cornell University Medical Alumni, given annually for "distinguished service to medicine."

The scroll reads: "In recognition of her notable achievement in the teaching and practice of medicine and her faithful service to the Medical College, its students and alumni. Her life and work have brought honor and acclaim to her Medical College." Dr. Guion is a member of the New York Academy of Medicine, the American Medical Association, the American Medical Women's Association, and the Medical Societies of the State and County of New York, and is a diplomate of the American Board of Internal Medicine. She has also many public interests, having served as a member of the Industrial Council of the Department of Labor of the State of New York, on the Advisory Committee of the National Health and Safety Council of the Girl Scouts, and as Chairman of the Medical Appeals Unit. She is a trustee of Sweet Briar College, Virginia, a member of the American Council of Education in relation to women's work for defense, and a vice-president of the Joseph Collins Foundation, a fund to provide for the needs of medical students. She is a member of Phi Beta Kappa, Sigma Xi, and Alpha Omega Alpha. Her clubs are the Shakespeare Society, the Wellesley Club, and the Cosmopolitan Club, and her hobbies are philately and fishing.

# News of Women in Medicine

Three women physicians were among the thirty recipients of American Cancer Society Grants-in-Aid and Fellowships. Projects of the physicians receiving the awards are conducted in New York City institutions. The women physicians so honored were Drs. Helen Ollendorff Curth, Salome Gluecksohn-Schoenheimer and Sarah Ratner. Dr. Curth will conduct her research at Columbia University, College of Physicians and Surgeons. She will study Acanthosis nigricans, a skin disease which bears a close but as yet unknown relationship to internal cancer. Malignant tumors, principally in the stomach but sometimes in the breast, develop in about 50 percent of all patients afflicted with this disease. Treatment of Acanthosis nigricans has shown that sex hormones are a factor in the problem but the available data is still inadequate and research on this problem may disclose genetic or virus factors relating the disease to cancer. In her laboratory at New York University, Dr. Sarah Ratner plans to disclose the role of various enzymes and their associated chemical reactions—especially the ones associated with the release of energy, which is essential to growing tissue. In this research she will use slices of normal and malignant liver. The basis of this study is founded on the fact that many chemical reactions, aided by several enzyme systems, are located in the liver, which is also the site of much malignancy. Dr. Gluecksohn-Schoenheimer will determine the limits to which abnormal development can go. She wishes to prove the theory that cancer originates in the cell where a change has been effected in a gene. If this is so, then it will be most helpful if man can use radiation, chemistry or other means to modify the genic structure of any cell.

Dr. Leona Baumgartner was one of the speakers at the first nationwide medical conference on Progressive Muscular Dystrophy, held in New York.

The Hudson County Medical Society Auxiliary sponsored a panel discussion on the applications of atomic energy. This meeting was held at the Jersey City Medical Center. Dr. Rosalyn S. Yalow, Brooklyn, outlined the use of radioactive isotopes in medical research and in diagnosis therapy.

Dr. Gwendolyn S. Jones is on the Standing Committee on Economics of the Medical Society of the County of New York. Dr. Jones is assistant physician at Presbyterian Hospital and the Vanderbilt Clinic.

Drs. Julia Jones and Julia Judson were instructors in a postgraduate course in "Dynamic Therapeutics of Chronic Diseases." The course was given at the New York University-Bellevue Medical Center Institute of Physical Medicine and Rehabilitation and was sponsored by the American College of Physicians.

Dr. Mary Poe of Memphis, Tennessee, discussed "Clinical Experiences with Methoxamine as a Vasopressor for Spinal Anesthesia" at the annual meeting of the Southern Society of Anesthesiologists held at Louisville, Kentucky.

The Eastern Section meeting of the American Congress of Physical Medicine was held at Philadelphia General Hospital. Dr. Stella Stevens Bradford of Upper Montclair, New Jersey, spoke on "General Developmental Exercise in Treatment of Specific Structural Disabilities."

At the twenty-first annual Safety Convention and Exposition, held in New York City, Dr. Lydia G. Giberson, personnel adviser for Metropolitan Life Insurance Company, presented her latest findings on "Emotional Factors in Safety." "We Must Protect Our Children" was the topic discussed by Dr. Leona Baumgartner, Assistant Commissioner, New York City Department of Health.

A new method for detecting early cancer of the lower intestinal tract has been reported by Drs. Genevieve Bader and George Papanicolaou. The principle used is identical with that originally described by Papanicolaou, who noted that cells shed from internal structures can be picked up in fluids from the body orifices. Dr. Bader, who studied under Dr. Papanicolaou, applied this principle to the detection of cancer of the rectum and the large intestine. She is a Damon Runyon fellow at Memorial Center's Strang Clinic. Dr. Bader has tested 200 men and women at the Strang Clinic. The cells to be studied are obtained from the intestinal walls by simple washing techniques. She feels that this method offers "a dependable and valuable diagnostic procedure for the detection of early cancer in the rectum and large bowel."

One of the guest speakers at the annual Spring Clinical Conference of the Dallas Southern Clinical Society was Dr. Katherine Dodd, of Cincinnati. Her topic was "Virus Pneumonia in Childhood."

Dr. Elizabeth A. Sirmay has been elected secretary of the Los Angeles Society of Allergy.

The Harvard University Laboratory of Physical Chemistry Related to Medicine and Public Health

sponsored a series of public seminars on "Blood Cells and Plasma Proteins: Their State in Nature." DR. MARGARET J. HUNTER took part in one of the seminars, entitled "Enzymes of Plasma." Drs. D. M. Surgenor and R. K. Brown were associated with Dr. Hunter in this presentation.

Over a period of six years, DR. PAULINE B. MACK of Pennsylvania State College, has conducted a nutritional survey of 2,564 children. She has concluded that fewer than one-fifth of the children studied received the required calories for their ages and calculated activities, as well as adequate proteins and minimum amounts of a list of minerals and vitamins. Two-fifths were receiving adequate calories but were lacking in the other elements. The youngest children had the best diets.

LIEUTENANT COLONEL CLARA RAVEN, Medical Corps, United States Army Reserve, of Dayton, Ohio, has been recalled to extended active duty with the Armed Forces Institute of Pathology, Washington, D. C. After a short period there, she expects to be sent to Japan. She was one of the first six women physicians to be commissioned by the Army in 1943. She had service in France, Germany and Hawaii during World War II. Since her separation from the service in 1948, Dr. Raven has been chief pathologist at the Veterans Administration Center, Dayton, Ohio, and a member of the Research and Development of the Organized Reserve Corps. Dr. Raven was graduated from the University of Michigan and did graduate work toward a Master of Science degree in bacteriology. She received her medical degree from Northwestern University Medical School in 1938. In addition to research at the above schools and the University of Chicago, she taught at the Woman's Medical College of Pennsylvania and the University of Illinois Medical School. Prior to World War II, she served as a John M. Garrett International Fellow at the University of Liverpool, England.

MARCELLE BERNARD, M.D., *News Editor*
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## Branch One, Washington, D. C.

On February 27, 1951, the Women's Medical Association of the District of Columbia and the Women's Bar Association of the District of Columbia held a joint dinner meeting in the Terrace Room of the Army and Navy Club. The meeting was arranged under the co-chairmanship of Shirley S. Martin, M.D., of the Women's Medical Association, and Joan C. Murphy of the Women's Bar Association. The Honorable James R. Kirkland, Judge of the United States District Court for the District of Columbia, and Dr. Zigmond I. Lebensohn, Assistant Professor of Psychiatry, Georgetown University, spoke on "The Medical and Legal Aspects of Marriage Counselling."

At the March 6 meeting, held at the home of Dr. Elizabeth Kittredge, Dr. Thomas McPherson Brown discussed "Arthritis."

## Branch Eleven, Cincinnati, Ohio

At the May meeting, the Cincinnati Medical Women's Club was hostess to the six Senior women students of the University of Cincinnati College of Medicine.

In honor of the Daniel Drake Centennial, the subject, "Fifty Years of Medicine and Surgery in the Ohio Valley from Antitoxin to Antibiotics," was reviewed by women practitioners. Following the dinner, old medical relics including a glass x-ray plate, original ophthalmoscope, old Pharmacopeia, wooden stethoscope, doctor's bag equipped as of 1910, and other medical "antiques" were presented and described by members of the group.

The new officers are: Esther Marting, M.D., *President;* Marjorie Grad, M.D., *Vice President;* Rachel Braunstein, M.D., *Secretary;* and Bertha Dauch, M.D., *Treasurer.*

A cocktail party and dinner were held at the Ohio State Medical meeting in Cincinnati on April 24, for all women physicians, including the Columbus and Cleveland Branches.

## Branch Fourteen, New York, New York

On May 7, 1951, the Spring meeting of the Women's Medical Association of New York City, Branch Fourteen, was held at the Hotel Beekman Tower, with cocktails followed by dinner. After a greeting to the students, a program was given. This was a discussion on the subject, "The Development of Women's Opportunity in Medicine as Experienced during the Past Half Century." The speakers were Dr. Alice Hamilton, former Assistant Professor of Industrial Medicine, Harvard Medical School; and Dr. Emily Barringer, former Director of Gynecological Service, Kingston Avenue Hospital, Brooklyn, New York. Following this came the first presentation of the annual awards for scholastic excellence to the fourth year woman student of each of the medical schools in New York. The meeting was concluded by a business meeting during which new members were elected and an amendment to the Constitution providing for affiliate membership was passed.

# BOOK NOTICES

(Editor's Note:—These reviews represent the individual opinions of the reviewers and not necessarily those of the members of the Editorial Board of the JOURNAL.)

**HISTORY OF THE WOMAN'S MEDICAL COLLEGE, PHILADELPHIA, PENNSYLVANIA, 1850 to 1950. By Gulielma Fell Alsop, M.D. 256 pages, plates. Price, $4.00. J. B. Lippincott, Philadelphia, 1950.**

This history of the Woman's Medical College of Philadelphia, Pennsylvania, covering the past century, is the result of a lot of hard digging into the records of the institution by the author who is an alumna, class of 1908.

It describes the origin, founding, and development of the Woman's College and Hospital and tells the story of those responsible for it over the years by writing brief biographies of all the Deans, beginning with Dr. Ann Preston who carried through the hard struggle and overcame all the obstacles, prejudices, and downright violence of the male members of the medical profession, who were so opposed to allowing women to enter medical schools at all. She, however, succeeded and continued to supervise the small college up to the end of her life in 1872.

She was succeeded by Dr. E. H. Cleveland, who, however, was a successful gynecologist by that time so she remained as Dean for only two years, to 1874.

Then came Rachel Bodley, a chemistry teacher, who guided the College destinies to 1888. The later Deans were Clara Marshall, M.D., 1888-1917; Martha Tracy, M.D., 1917-1940; Margaret Craighill, M.D., 1940-1946; and lastly the present incumbent, Marion Fay, M.D., 1946—.

In these biographies, the history of the College and Hospital is covered in detail. There also are related the records of many alumnae who have made names for themselves in various fields such as public service, preventive medicine, pediatrics, hygiene, and missionary work.

The College has its roots in the religion of its founders, the Quakers of Pennsylvania. Hence, through the years it has encouraged students to go out on missions after graduation so you find them in many countries, particularly in India and China.

Women no longer have any difficulty in entering any medical school they desire. This has been the case since the start of the twentieth century. The result is that the Woman's Medical College is the only medical school in the United States which is exclusively for women.

This history will no doubt bring many happy memories of their student days to the alumnae of the college.

—E. S. L'ESPERANCE, M.D.

**WHEN MINDS GO WRONG. By John Maurice Grimes, M.D., Psychiatrist, Staff Member of the Council on Medical Education and Hospitals of the American Medical Association. Pp. 237, Price $5.00. Published by the author, Chicago, 1950.**

Dr. Grimes has presented his case in a very clear and concise way. From his extensive experience with state hospital management he has gleaned facts which though disappointing ought nevertheless be an incentive toward creating a better system for the treatment and care of the mentally ill.

His criticisms of the political control, the lack of physicians, the poor caliber of attendants and the physical structure of mental hospitals seem justified. He has done a very good job of pointing up the faults and defects of the system.

His solutions or remedies for the present conditions are not always of sound practical value. His prediction "of a glorified future for mental patients," is, as he says, "a dream." When people are able to live in such harmony with one another and to care for their every need, as he states the patients would in "the hospital of the future," it would appear that they could no longer be said to be mentally ill.

The book serves a useful purpose in focusing the attention on the many defects existing in the state mental hospital system. This awareness of conditions must constantly be renewed. Only a facing of the real issues can bring about the desired changes which Dr. Grimes advocates.

I would recommend it highly for persons doing psychiatric work. For the lay person it might increase his fear and anxiety which is so widespread concerning mental hospitals.

—ANTHONY L. ZANNI, M.D.

**PHYSICAL DIAGNOSIS. By Ralph H. Major, M.D., Professor of Medicine, University of Kansas. Fourth Edition. Pp. 466, with 469 figures. Price $6.50. W. B. Saunders Company, Philadelphia and London, 1951.**

This textbook, recently published in its fourth edition, is written by a teacher of wide experience, one who has devoted many years to instilling in his students an appreciation of the importance of maintaining an alert sense of observation as well as the necessity for constant painstaking practice in the fundamentals of inspection, palpation, percussion and auscultation. It is his belief that "in no field of medicine is a true start more important or a false start more disastrous than in the study of physical diagnosis." It is the function of this book to provide a solid foundation for the acquisition of diagnostic skill; this function is admirably fulfilled.

In this era of emphasis on laboratory and technical diagnostic aids, it is good for the practicing physician, as well as the student, to be reminded that nothing can take the place of a careful examination of the patient. To emphasize this, the author quotes Sir William Osler, who once said: "And when you can, read the original descriptions of the masters who, with crude methods of study, saw so clearly." Some of these descriptions, included by the author, provide valuable background and contribute to the clarity of presentation. The introduction is an interesting and inspiring chapter on medical history.

The book is written in a simple straightforward style, and is well illustrated. It might better begin with the second chapter on general inspection, since the first chapter on pain more properly belongs in a textbook of internal medicine.

—HELEN S. HASKELL, M.D.

**ENGLISH-GERMAN MEDICAL DICTIONARY. Compiled by F. S. Schoenewald, M.D. Berlin. Introduction by Samson Wright, John Astor Professor of Physiology, University of London. Pp. 242. Price $6.00. The Blakiston Company, Philadelphia, 1951.**

This English-German section follows the edition of the German-English part of the dictionary. The two sections will continue to be supplied separately. The author is a German physician who, as a refugee from Nazi Germany, found a new home in England. The book not only presents word-material for the translation of medico-technical terms but also includes lay expressions commonly used in medical practice. A special

method is employed to explain the meaning and shade of the various German words by which an English word may be translated. The proper use of the variety of such German words is illustrated by examples of German phrases which, as a rule, are taken from the field of medical literature. The range of common English words included in the dictionary is a wide one. Also the list of the medico-technical terms appears generally satisfactory. Their range is based on the material of 30,000 pages of medical literature, as the author states. For a future revision the addition of the terms "germ layer" and "guinea pig" may be suggested.

The dictionary represents a carefully elaborated work and can be recommended as a useful and reliable book.

—RICHARD WEISSENBERG, M.D.

**RETURN TO LIFE. By Lily MacLeod. Pp. 128. Price, $2.00. J. B. Lippincott Company, Philadelphia, 1951.**

This is the story of a lady in her early forties who, like many other misinformed women, made the mistake of regarding symptoms occuring at that age as part of the menopause. She did nothing about it until the blood stained leucorrhea, with which she was afflicted, was found accidentally by her doctor whilst seeking his advice for something else. A further examination revealed malignancy of the cervix.

Much of the book is concerned with the emotional disturbances following upon the awareness that she had cancer. Its main justification is the lesson that any persistant abnormality of bodily function should prompt everyone to seek competent medical advice without delay, or better still, to submit to a complete periodic medical examination even in the absence of symptoms.

The book would carry more conviction and would offer sufferers from cancer that desperately needed encouragement, if the story had not been written so soon after the completion of treatment. Let us hope that a few years from now Lily MacLeod will be in the happy position of writing a sequel to her present book in the shape of a report indicating freedom from a recurrence of the disease, in other words, a cure.

—MAY STRANG

**CHECK: COMMUNITY HEALTH EDUCATOR'S COMPENDIUM OF KNOWLEDGE. By Clair E. Turner, A.M., Ed.M., D.Sc., Dr.P.H., Professor of Public Health Emeritus, Massachusetts Institute of Technology; Assistant to the President, National Foundation for Infantile Paralysis; Consultant in Health Education, World Health Organization. Pp. 253. Price $3.00. C. V. Mosby Company, St. Louis, 1951.**

An acrostic is formed by the title: CHECK; and it is as a check list that this guide book for health educators is planned. Useful for anyone dealing in public relations, the author stresses the function of the health educator as a useful link between the professional and lay fields. Sections are very brief, with small bodies of text, followed by listings of attributes or materials, depending on the subject matter. Room is left for personal notes and remarks. The table of contents makes a concise and easy reference for the information in the book. The first part is concerned with basic principles, human motivations, and suggestions, often repetitious, for working with people, whether individually or in groups. Specific aids are offered in the last section, showing how to map out campaigns, public meetings, and how to prepare written material, speeches, and use visual aids. An appendix lists sources of printed and visual materials for health education.

—ELIZABETH C. SMITH

**THE SOCIAL AND BIOLOGICAL CHALLENGE OF OUR AGING POPULATION. New York Academy of Medicine: Proceedings of the Eastern States Health Education Conference, March 31-April 1, 1949. Pp. xii & 183. Price $2.75. Columbia University Press, New York, 1950.**

This book is a collection of thoughtful papers on the growing importance of the problems peculiar to the later years. Had the symposium been presented as a text, the group would be exemplary of gerocomy, which is the study of the total sociological aspects of old age.

Most students of the field of aging can widen their concepts and evade limitations of their own sphere of personal interest through these essays. Those specializing in geriatrics will be enabled to visualize themselves as part of a universal social trend. The gerontologic pathologist and the gerocomic sociologist will find themselves ranged with those whose interests are identical even though the means and the ends start and finish at different points.

The high level of Oliver's biologo-philosophic approach is difficult to match. His essay is indicative of much work and thought on the aging organism. The demography is comprehensive and is followed by a pediatrician aspect which is as clever as it is perspective. One can enjoy and appreciate the vigorous indignation of Julius Hochman, who, with striking phrases, exposes the fallacies of the Pollyanna school of retirement.

Herein, in brief, are expressed the problems, the challenges, the present and the projected solutions in this field. The physician treating a single older person finds himself joining hands with those planning on national and international levels, all being actuated by the same impacts, the considerations of an aging population, always present and now increasing.

Unavoidably, there has been some overlap of concepts, and repetition of some ideas and statistics, even some minor contradictions, but they are not too obvious nor distracting. For almost any worker, as well as for matriculants, this little book is a good starting point for a view of the complex picture of older age in current society, and offers a means of sharing in the responsibilities for the solution of a major problem.

—JOSEPH T. FREEMAN, M.D.

**THORACIC SURGERY. By Richard H. Sweet, M.D., Associate Clinical Professor of Surgery, Harvard University Medical School. Illustrations by Jorge Rodrigues Arroyo, M.D., Assistant in Surgical Therapeutics, University of Mexico Medical School. Pp. 345, illustrations 155. Price $10.00. W. B. Saunders Company, Philadelphia, 1950.**

This practical volume is concerned primarily with operative technique in thoracic surgery. It is presented on the concept "that any properly qualified surgeon can acquire with relative ease a satisfactory proficiency in thoracic surgery by employing the techniques herein described." In carrying out this objective, the author develops concisely and in well illustrated detail the surgical procedures which have proved valuable to him during his outstanding career in thoracic surgery.

The most complete coverage is given to pulmonary resection while controversial subjects, experimental work, and operations of historical interest only are avoided. The volume should be of great value to the young student of thoracic surgery because of its fundamental nature and of interest to all as an exposition of the techniques practiced in the author's clinic.

—DONALD R. COOPER, M.D.